

=> FILE REG

FILE 'REGISTRY' ENTERED AT 15:01:37 ON 10 FEB 2009
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=> DISPLAY HISTORY FULL L1-

FILE 'REGISTRY' ENTERED AT 11:49:02 ON 10 FEB 2009

E MOLYBDENUM TRIOXIDE/CN

L1 1 SEA "MOLYBDENUM TRIOXIDE"/CN
L2 4 SEA "MOLYBDENUM TRIOXIDE DIHYDRATE"/CN OR "MOLYBDENUM
TRIOXIDE HEMIHYDRATE"/CN OR "MOLYBDENUM TRIOXIDE
HYDRATE"/CN OR "MOLYBDENUM TRIOXIDE MONOHYDRATE"/CN
L3 5 SEA L1 OR L2
E MOLYBDENUM OXIDE/CN
L4 3 SEA "MOLYBDENUM OXIDE"/CN
L5 347 SEA (MO (L) O)/ELS (L) 2/ELC.SUB
E PHOSPHORIC ACID/CN
L6 1 SEA "PHOSPHORIC ACID"/CN
E MAGNESIUM OXIDE/CN
L7 1 SEA "MAGNESIUM OXIDE"/CN
E CALCIUM OXIDE/CN
L8 1 SEA "CALCIUM OXIDE"/CN
E SODIUM OXIDE/CN
L9 1 SEA "SODIUM OXIDE"/CN
E MAGNESIUM CARBONATE/CN
L10 1 SEA "MAGNESIUM CARBONATE"/CN
E CALCIUM CARBONATE/CN
L11 1 SEA "CALCIUM CARBONATE"/CN
E SODIUM CARBONATE/CN
L12 1 SEA "SODIUM CARBONATE"/CN

FILE 'HCA' ENTERED AT 11:59:19 ON 10 FEB 2009

L13 181862 SEA FERTILIZ? OR FERTILIS?
L14 27702 SEA L3 OR (MOLYBDENUM# OR MO) (W)TRIOXIDE# OR MOO3
L15 41217 SEA L4 OR L5 OR (MOLYBDENUM# OR MO) (W)OXIDE# OR MOO2 OR
MOO4
L16 163908 SEA L6 OR (PHOSPHORIC# OR ORTHOPHOSPHORIC#) (A)ACID# OR
H₃PO₄
L17 217741 SEA L7 OR (MAGNESIUM# OR MG) (W) (OXIDE# OR MONOXIDE#) OR
MAGNESIA# OR MGO
L18 177850 SEA L8 OR (CALCIUM# OR CA) (W) (OXIDE# OR MONOXIDE#) OR
CACCIA# OR CAO
L19 83643 SEA L9 OR (SODIUM# OR NA) (W)OXIDE# OR NA₂O
L20 21186 SEA L10 OR (MAGNESIUM# OR MG) (W)CARBONATE# OR MGC₃O₄

L21 146909 SEA L11 OR (CALCIUM# OR CA) (W)CARBONATE# OR CACO3
 L22 148680 SEA L12 OR (SODIUM# OR NA) (W)CARBONATE# OR NA2CO3
 L23 26 SEA L13 AND (L14 OR L15) AND L16
 L24 9 SEA L23 AND ((L17 OR L18 OR L19 OR L20 OR L21 OR L22))
 L25 174 SEA L13 AND (L14 OR L15)
 L26 63 SEA L25 AND ((L17 OR L18 OR L19 OR L20 OR L21 OR L22))
 L27 55 SEA L25 AND (L17 OR L18 OR L19)
 L28 24 SEA L25 AND (L20 OR L21 OR L22)
 L29 16 SEA L27 AND L28
 L30 QUE ?PHOSPHORIC? OR ?PHOSPHAT?
 L31 28 SEA L27 AND L30
 L32 49 SEA (L23 OR L28 OR L29 OR L31) NOT L24
 L33 22 SEA L27 NOT (L31 OR L32)
 L34 8 SEA 1808-2003/PY,PRY,AY AND L24
 L35 41 SEA 1808-2003/PY,PRY,AY AND L32
 L36 18 SEA 1808-2003/PY,PRY,AY AND L33

=> FILE HCA
 FILE 'HCA' ENTERED AT 15:03:04 ON 10 FEB 2009
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=> D L34 1-8 CBIB ABS HITSTR HITIND RE

L34 ANSWER 1 OF 8 HCA COPYRIGHT 2009 ACS on STN
 142:197277 Manufacture of a bio-release molybdenum **fertilizer**.
 Varadachari, Chandrika (Department of Science & Technology DST,
 India). PCT Int. Appl. WO 2005014506 A2 20050217, 17 pp.
 DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR,
 BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,
 ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
 NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL,
 SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW;
 RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA,
 GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR.
 (English). CODEN: PIXXD2. APPLICATION: WO 2004-IN235 20040806.
 PRIORITY: IN 2003-DE970 20030806.

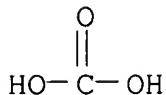
AB A process for the prepn. of bio-release molybdenum
fertilizers comprises heating **molybdenum trioxide** with Mg, Ca and/or **Na carbonates**
 or oxides and **phosphoric acid** till a solid

polyphosphate is obtained, yielding a dry, free-flowing hygroscopic product. Pyrolusite is added during the manuf. process to remove the impurities in the raw materials.

IT **471-34-1, Calcium carbonate, biological studies** **497-19-8, Sodium carbonate, biological studies** **546-93-0, Magnesium carbonate** **1305-78-8, Calcium oxide, biological studies** **1309-48-4, Magnesium oxide, biological studies** **1313-27-5, Molybdenum trioxide, biological studies** **7664-38-2, Phosphoric acid, biological studies**
 (reactant in manuf. of a bio-release molybdenum fertilizer)

RN 471-34-1 HCA

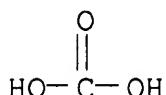
CN Carbonic acid calcium salt (1:1) (CA INDEX NAME)



● Ca

RN 497-19-8 HCA

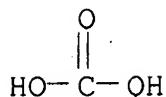
CN Carbonic acid sodium salt (1:2) (CA INDEX NAME)



●2 Na

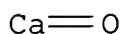
RN 546-93-0 HCA

CN Carbonic acid, magnesium salt (1:1) (CA INDEX NAME)

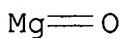


● Mg

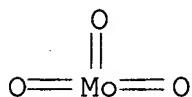
RN 1305-78-8 HCA
 CN Calcium oxide (CaO) (CA INDEX NAME)



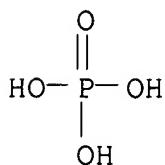
RN 1309-48-4 HCA
 CN Magnesium oxide (MgO) (CA INDEX NAME)



RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



RN 7664-38-2 HCA
 CN Phosphoric acid (CA INDEX NAME)



IC ICM C05G003-00
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST biorelease molybdenum **fertilizer** manuf
 IT **Fertilizers**
 (molybdenum; manuf. of a bio-release molybdenum
 fertilizer)
 IT 14854-26-3, Pyrolusite
 (in manuf. of a bio-release molybdenum **fertilizer**)

IT 7439-98-7, Molybdenum, biological studies
(manuf. of a bio-release molybdenum **fertilizer**)
IT 471-34-1, Calcium carbonate, biological
studies 497-19-8, Sodium carbonate,
biological studies 546-93-0, Magnesium
carbonate 1305-78-8, Calcium
oxide, biological studies 1309-48-4,
Magnesium oxide, biological studies
1313-27-5, Molybdenum trioxide,
biological studies 7664-38-2, Phosphoric
acid, biological studies
(reactant in manuf. of a bio-release molybdenum
fertilizer)

RE

- (1) Anon; US 3762909 A HCA
- (2) Anon; US 4585751 A HCA
- (3) Anon; US 5433766 A HCA
- (4) Anon; WO 8100010 A1 HCA

L34 ANSWER 2 OF 8 HCA COPYRIGHT 2009 ACS on STN

137:185043 Comprehensive utilization for coal burning boiler smoke and ash slag. Zhao, Shanmao; Zhang, Zhao; Xiao, Dazhuang (Zhao Shanmao, Peop. Rep. China). Faming Zhanli Shenqing Gongkai Shuomingshu CN 1326912 A **20011219**, 32 pp. (Chinese). CODEN: CNXXEV.

APPLICATION: CN 2000-109011 20000602.

AB The title utilization method comprises: (1) converting S element in the boiler smoke into H₂SO₄ and sulfate **fertilizer**; (2) vitrifying coal and coal dregs to obtain glass **fertilizer**, rock wool fiber or construction materials such as insulation plate, artificial wood, wall board, etc. The sulfate **fertilizer** can be mixed with P **fertilizer**, glass **fertilizer**, N **fertilizer**, K **fertilizer**, B **fertilizer** and functional glass **fertilizer**. The method is low in toxicity and pollution.

IT 1305-78-8, Calcium oxide, biological
studies 1309-48-4, Magnesium oxide (MgO), biological studies 1313-27-5, Molybdenum oxide (MoO₃), biological studies

(comprehensive utilization for coal burning boiler smoke and ash slag)

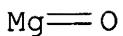
RN 1305-78-8 HCA

CN Calcium oxide (CaO) (CA INDEX NAME)

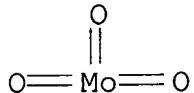
Ca=O

RN 1309-48-4 HCA

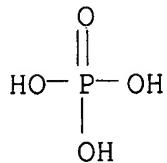
CN Magnesium oxide (MgO) (CA INDEX NAME)



RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IT **7664-38-2P, Phosphoric acid**, preparation
 (comprehensive utilization for coal burning boiler smoke and ash
 slag)
 RN 7664-38-2 HCA
 CN Phosphoric acid (CA INDEX NAME)



IC ICM C05G001-00
 ICS C05D009-00; C05B011-08; C03C013-06; B09B003-00; B01D053-34
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 Section cross-reference(s): 58, 60
 ST boiler smoke fly ash **fertilizer** rock wool construction
 material
 IT **Fertilizers**
 (germanium and selenium-enriched glass **fertilizer**;
 comprehensive utilization for coal burning boiler smoke and ash
 slag)
 IT **Fertilizers**
 (sulfur; comprehensive utilization for coal burning boiler smoke
 and ash slag)
 IT **Fertilizers**
 (trace element; comprehensive utilization for coal burning boiler
 smoke and ash slag)
 IT 1303-86-2, Boron oxide (B₂O₃), biological studies **1305-78-8**
 , **Calcium oxide**, biological studies 1307-96-6,
 Cobaltous oxide, biological studies 1308-38-9, Chromium oxide
 (Cr₂O₃), biological studies 1309-37-1, Ferric oxide, biological
 studies **1309-48-4**, **Magnesium oxide** (
MgO), biological studies 1313-27-5,

Molybdenum oxide (MoO₃), biological

studies 1313-99-1, Nickel oxide (NiO), biological studies 1314-13-2, Zinc oxide (ZnO), biological studies 1314-62-1, Vanadium oxide (V₂O₅), biological studies 1317-38-0, Cupric oxide, biological studies 1344-28-1, Alumina, biological studies 1344-43-0, Manganese oxide, biological studies 7440-56-4, Germanium, biological studies 7553-56-2, Iodine, biological studies 7631-86-9, Silica, biological studies 7782-49-2, Selenium, biological studies 18282-10-5, Tin oxide (SnO₂) (comprehensive utilization for coal burning boiler smoke and ash slag)

IT **7664-38-2P, Phosphoric acid, preparation**

(comprehensive utilization for coal burning boiler smoke and ash slag)

L34 ANSWER 3 OF 8 HCA COPYRIGHT 2009 ACS on STN

128:216848 Original Reference No. 128:42965a,42968a Method of obtaining superabsorbent **fertilizers**. Beres, Janusz; Nowosielski, Olgierd; Irek, Joachim; Pecherczyk, Anna; Maslowska, Marzena; Gabrys, Jozef; Burkon, Zbigniew; Glados, Stanislaw; Durczynska, Danuta (Przedsiebiorstwo Produkcyjno-Handlowo-Uslugowe "Ekochem" Sa, Pol.). Pol. PL 172818 B1 **19971128**, 4 pp. (Polish).

CODEN: POXXA7. APPLICATION: PL 1994-303578 19940523.

AB A hydrated gel material consisting of partially crosslinked copolymer of acrylic acid and N,N'-methylene-bis-acrylamide is reacted with oxides and hydroxides of K, Mg, Ca, Cu, Zn, Fe, Mn and Mo and subsequently mixed with Krylamine D foam in which had previously been incorporated **H₃PO₄**, H₂SO₄ and H₃BO₃. Other agrochems. such as herbicides, pesticides and fungicides may be added.

IT **1305-78-8, Calcium oxide, biological**
studies 1309-48-4, Magnesium oxide,
biological studies 7664-38-2, Phosphoric
acid, biological studies 18868-43-4,

Molybdenum oxide

(method of obtaining superabsorbent **fertilizers**)

RN 1305-78-8 HCA

CN Calcium oxide (CaO) (CA INDEX NAME)

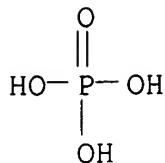
Ca=O

RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg=O

RN 7664-38-2 HCA
 CN Phosphoric acid (CA INDEX NAME)



RN 18868-43-4 HCA
 CN Molybdenum oxide (MoO₂) (CA INDEX NAME)



IC ICM C05G003-04
 ICS C09K017-22
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST superabsorbent **fertilizer**
 IT **Fertilizers**
 (method of obtaining superabsorbent **fertilizers**)
 IT 1305-78-8, Calcium oxide, biological
 studies 1309-48-4, Magnesium oxide,
 biological studies 1310-58-3, Potassium hydroxide, biological
 studies 1314-13-2, Zinc oxide, biological studies 1317-38-0,
 Cupric oxide, biological studies 1344-43-0, Manganese oxide,
 biological studies 1345-25-1, Ferrous oxide, biological studies
 7664-38-2, Phosphoric acid, biological
 studies 7664-93-9, Sulfuric acid, biological studies 10043-35-3,
 Boric acid, biological studies 18868-43-4,
 Molybdenum oxide 30280-72-9, Acrylic
 acid-N,N'-methylene-bis-acrylamide copolymer 149779-62-4,
 Krylamine D
 (method of obtaining superabsorbent **fertilizers**)

L34 ANSWER 4 OF 8 HCA COPYRIGHT 2009 ACS on STN
 121:207970 Original Reference No. 121:37847a,37850a Development of a
 new route to oxamide from coal and ammonia. Okuwaki, Akitsugu;
 Okabe, Taijiro (Fac. Eng., Tohoku Univ., Sendai, 980, Japan).
 Trends in Inorganic Chemistry, 2, 145-58 (English) 1991.
 CODEN: TIICEB.

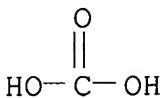
AB The prepn. of oxamide, a controlled-release nitrogen
fertilizer, from coal and ammonia was studied. Optimum
 conditions for the oxidn. of coal in alk. solns. were detd. under
 which the yield of oxalic acid was ≥ 90%. The
 alkali-catalyzed oxygen-oxidn. mechanism was confirmed by the
 kinetics with model compds. Crude sodium oxalate contg. 6%

sodium carbonate was easily recovered from the oxidn. products. A phase diagram of the $(COONa)_2 \cdot (NH_4)_2 \cdot (HCO_3)_2 \cdot H_2O$ system was constructed for the double decompn. reaction to obtain ammonium oxalate monohydrate from sodium oxalate. Acid catalysts promote thermal dehydration in the thermal decompn. of ammonium oxalate monohydrate to oxamide; the oxamide yield reached 86%.

IT **497-19-8P, Sodium carbonate**, preparation
(manuf. of oxamide from ammonia and coal by oxidn. and double decompn. and thermal dehydration route)

RN 497-19-8 HCA

CN Carbonic acid sodium salt (1:2) (CA INDEX NAME)

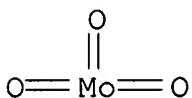


●2 Na

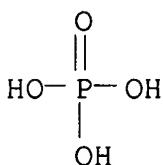
IT **1313-27-5, Molybdenum oxide (MoO₃)**, uses **7664-38-2, Phosphoric acid**, uses.
(manuf. of oxamide from ammonia and coal by oxidn. and thermal dehydration with phosphate salt catalysts)

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



RN 7664-38-2 HCA
CN Phosphoric acid (CA INDEX NAME)



CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 19, 23, 67

IT **497-19-8P, Sodium carbonate**, preparation
(manuf. of oxamide from ammonia and coal by oxidn. and double

decompn. and thermal dehydration route)

IT **1313-27-5, Molybdenum oxide (MoO₃)**, uses 1314-56-3, Phosphorus oxide (P2O₅), uses 2466-09-3, Pyrophosphoric acid 7558-79-4, Sodium phosphate (Na₂HPO₄) **7664-38-2, Phosphoric acid**, uses 7722-76-1, Ammonium phosphate (NH₄H₂PO₄) 7758-16-9, Sodium pyrophosphate (Na₂H₂P₂O₇) 7758-29-4, Sodium phosphate (Na₅P₃O₁₀) 7778-77-0, Potassium phosphate (KH₂PO₄) 13813-62-2, Tetraphosphoric acid (H₆P₄O₁₃) 50813-16-6, Sodium metaphosphate (manuf. of oxamide from ammonia and coal by oxidn. and thermal dehydration with phosphate salt catalysts)

L34 ANSWER 5 OF 8 HCA COPYRIGHT 2009 ACS on STN

107:76880 Original Reference No. 107:12645a,12648a Production of concentrated microfertilizer. Plyshevskii, S. V.; Gavril'yuk, N. I.; Bardinov, F. G.; Pechkovskii, V. V. (Belorussian Technological Institute, USSR; Belorussian Scientific-Research Institute of Soil Science and Agrochemistry). U.S.S.R. SU 1270148 A1 **19861115**
From: Otkrytiya, Izobret. 1986, (42), 87. (Russian). CODEN: URXXAF. APPLICATION: SU 1984-3819742 19841205.

AB Concd. microfertilizer is produced by mixing phosphate-contg. components with components which regulate the solv. of microfertilizers and with compds. of trace elements. The mixt. is heated to melting, and the melt is granulated and crushed. The temp. of the process is decreased and total nutrients in the **fertilizer** are retained by first mixing phosphate-contg. components and the components which regulate the solv. of the microfertilizer, at a 1:(0.42-0.66) wt. ratio, on acid wt., basis. The mixt. is heated to 550-880° and compds. of trace elements are added, at a melt/trace element compd. ratio of 1:(0.10-0.55). The melt is kept for 30-60 min and then granulated and crushed. The phosphate-contg. components are **H₃PO₄**, NaH₂PO₄, or KH₂PO₄. The components which regulate the solv. are NaNO₃, NaH₂PO₄, K₂CO₃, KH₂PO₄, KC₁, NaOH, KOH, K manganate, **CaCO₃**, **CaO**, and Ca(OH)₂. Compds. of trace elements are Cu oxide, ZnO, **Mo oxide**, Mn oxide, Co oxide, K manganate, Co molybdate, and Co cake.

IC ICM C05G003-00

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)

ST trace element phosphate **fertilizer**

IT Trace elements, biological studies
(**fertilizers** contg.)

IT **Fertilizers**

(phosphorus-trace element, manuf. of)

IT 7439-96-5, Manganese, biological studies 7439-98-7, Molybdenum, biological studies 7440-48-4, Cobalt, biological studies 7440-50-8, Copper, biological studies 7440-66-6, Zinc, biological studies

(fertilizer contg.)

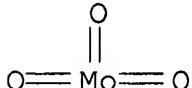
IT 7723-14-0P

(fertilizers, phosphorus-trace element, manuf. of)

L34 ANSWER 6 OF 8 HCA COPYRIGHT 2009 ACS on STN
 84:88676 Original Reference No. 84:14500h,14501a Solid, clear,
 water-soluble complete fertilizer mixture. (Krems
 Chemie-G.m.b.H., Austria). Austrian AT 326160 **19751125**, 4
 pp. (German). CODEN: AUXXAK. APPLICATION: AT 1973-8669 19731011.
 AB Complete trace element-contg. fertilizers were prep'd. by
 hot dissoln. of heavy metal compds. (oxides, hydroxides, or salts)
 in **H₃PO₄**, neutralization of the acid with **Na₂CO₃**
 , evapn. and transformation of the residue into a clear alkali-heavy
 metal polyphosphate, which, after cooling, had a pH 0.2-8.8 (in 1%
 soln.); the fused melt was ground and mixed with N-P-K and/or the
 fertilizer salts, vitamins, growth regulators, and nonmetal
 trace elements. The heavy metal content of the alkali-heavy metal
 polyphosphate was 0.1-9 wt.% calcd. on the metal oxide basis. Thus,
 a mixt. of Zn, Fe, Mn, Cu, Ni, Co, etc. (5 g as oxides, carbonates,
 or other salts) is dissolved by heating in 376 g 75% **H₃PO₄**
 , 100 ml H₂O is added, and the soln. is neutralized with 148 g
Na₂CO₃. After preliminary evapn., the green-blue soln. is
 transferred into a Pt dish and further evapd. at increased temp.;
 the evapn. during the last hr is carried out at 800°. The
 melt is spread over a cooled steel plate. The solidified melt is
 green, glasslike, and clear. The fused mass is fine-ground and
 mixed with polyphosphates, NH₄H₂PO₄, and N- and K-contg. compds. in
 required ratios. A 40% soln. of the prep'd. mixt. is at the
 beginning clear, but an amorphous ppt. appears in it when the soln.
 is kept for a few days at 5°.

IT **1313-27-5**, reactions(with phosphoric acid, in complex
 fertilizer manuf.)

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)

IC C05G

CC 19-5 (Fertilizers, Soils, and Plant Nutrition)

Section cross-reference(s): 49

ST complex fertilizer clear solid manuf; trace element
 phosphate fertilizerIT **Fertilizers**

(complex, contg. metal phosphates, manuf. of solid, clear, and

- water-sol.)
- IT Trace elements
 (fertilizers contg., manuf. of complex, solid, clear,
 and water-sol.)
- IT Metals, reactions
 (heavy, with phosphoric acid in complex
 fertilizer manuf.)
- IT Polyphosphoric acids
 (metal salts, complex fertilizers contg., manuf. of
 solid, clear, and water-sol.)
- IT 7439-96-5, biological studies 7440-02-0, biological studies
 7440-48-4, biological studies 7440-50-8, biological studies
 7440-66-6, biological studies
 (fertilizers contg., manuf. of complex, solid, clear,
 and water-sol.)
- IT 598-62-9
 (reaction with phosphoric acid, in complex
 fertilizer manuf.)
- IT 10124-43-3
 (with phosphoric acid, in complex
 fertilizer manuf.)
- IT 1309-38-2, reactions 1313-27-5, reactions 1314-13-2,
 reactions 1317-38-0, reactions
 (with phosphoric acid, in complex
 fertilizer manuf.)

L34 ANSWER 7 OF 8 HCA COPYRIGHT 2009 ACS on STN

57:51348 Original Reference No. 57:10270d-g Granulated compound fertilizers from lime, nitrogen, magnesium phosphate, and potassium salts. Nagai, Shoichiro; Fujiya, Junichi; Tokutake, Hisaharu (Yokohama Natl. Univ.). Kogyo Kagaku Zasshi, 62, 681-3 (Unavailable) 1959. CODEN: KGKZA7. ISSN: 0368-5462.

AB The authors tried to make the special compd. fertilizers by using Mg phosphate, lime, nitrogen, and a potassium salt (KCl or K₂SO₄). They found that a retarding effect by the basic fertilizer of P availability in the soil can be excluded by using this Mg phosphate. In the case of mixing KCl as the K salt, the fertilizer samples granulated by Ca(NO₃)₂ or MgCl₂ soln. were detd. to be effective to prohibit the change of cyanamide to dicyan diamide. But in the case of mixing K₂SO₄ as the K salt, the prohibition of cyanamide to dicyandiamide by Ca(NO₃)₂ soln. was seen not to be effective. These facts are to be explained that in the case of KCl, free water is fixed by the formation of double salt (e.g., x Ca(NO₃)₂.y KCl.z H₂O), and in the case of K₂SO₄, this double salt is not formed. The addn. of MoO₃ or B₂O₃ to these granulated compd. fertilizers as the trace fertilizing element, was detd. to bring no bad effect to the product (e.g. the deterioration of citric acid soly. of

phosphoric acid or increasing of hygroscopicity of granulated product). The citric acid (2%) soly. of **phosphoric acid** and **MgO** were both about 97-98%, and did not decrease in the storing of few months.

CC 61 (Plant Nutrition, Soils, and Fertilizers)

IT Lime

(**fertilizers** from Mg phosphate, N, K salts and)

IT **Fertilizers**

(from lime, Mg phosphate, N and K salts)

IT 10043-83-1, Magnesium phosphate

(**fertilizers** from **CaO**, N, K salts and)

L34 ANSWER 8 OF 8 HCA COPYRIGHT 2009 ACS on STN

10:846 Original Reference No. 10:159e-i,160a-d Report on testing chemical reagents. Rather, J. B. Journal of the Association of Official Agricultural Chemists, 1, 317-29 (Unavailable) **1915**. CODEN: JOACAZ. ISSN: 0095-9111.

AB The purity and strength of crude NaOH, molybdic acid, com. citric acid, and ethyl ether have been studied in regard to their suitability for the detn. of N, **phosphoric acid**, insol. **phosphoric acid**, and ether ext., resp.

(I). Four methods were used for the detn. of carbonate in crude NaOH. (1) Krauch-Merck, (2) Sutton, (3) Sutton, by pptn. as BaCl₂ and (4) the following modification by the referee: Dissolve 2 g. crude NaOH in H₂O and titrate with approx. 2 N HCl and phenolph. until the color fades. To another 2 g. portion add 0.5 cc. less of the 2 N acid, and titrate with 0.2 N acid until the color fades; read the buret, add 2 or 3 drops Me orange, and titrate until the color changes. The number of cc. 0.2 N acid required to change the Me orange + 1.06 gives the % **Na₂CO₃**. All samples tested but 1 contained more than 90% NaOH. Methods (1) and (2) give discordant results both from duplicate detns. and by the 2 methods. Further study of method (4) and of the amt. of **Na₂CO₃**

which causes frothing in the N detns. is desirable before a limit is set. (II) Conditions affecting the detn. of N in NaOH. (A) Effect of the amt. of NaOH on the apparent N. Two methods were used: (1) Put 100 g. NaOH into a Kjeldahl flask with a little granulated Zn and distil into a receiver containing 5 cc. 0.2 N HCl. Titrate the excess acid with 0.1 N NH₄OH and cochineal. (2) Same as (1) except that 40 g. NaOH are used. Method (1) gives too high results as some of the NaOH is carried over mechanically. (B) Effect of the addition of H₂SO₄ on the apparent N. H₂SO₄ had no effect on the results when 40 g. NaOH were used and its use is therefore unnecessary. (C) Effect of redistn. of distillate on the apparent N. Differences in results were small and within the limits of error, but this point should be studied further. (III) Molybdic acid. (A) Methods for detn.: (1) Krauch-Merck, (2) referee's modification of (1). Dissolve 0.5 g. molybdic acid (H₂MoO₄)? in 50

cc. H₂O and 1 cc. NH₄OH, heat gently, filter if necessary, acidulate with 5 cc. HOAc, dil. with 200 cc. H₂O, heat to boiling and add a filtered soln. of 1.5 g. lead acetate in 20 cc. H₂O. Boil several min., stirring constantly, allow to settle a minute or 2 and decant through a Gooch crucible. Wash by decantation 10 times, using 50 cc. boiling H₂O each time, allowing about a min. to settle.

Transfer the ppt. to the gooch, ignite, cool and weigh the ignited ppt. as PbMoO₄. The factor 78.494 gives % MoO₃. (3)

Referee. A volumetric method was tried but not found suitable.

Method (2) is much to be preferred over method (1), as it is much quicker (2 hrs. against 2 days). It is to be noted that "molybdic acid" in the official method probably means H₂MoO₄ (85%), but that nearly half of the cooperators seem to be using MoO₃. (B)

Phosphoric acid in molybdic acid. Total

phosphoric acid, phosphoric acid

in the official soln. and sulfates were detd. In only 2 cases was even a slight amt. of **phosphoric acid** found;

hence it appears that errors from this source are insignificant. No sulfates were found, but the effect of the sulfates should be studied further. (IV) Citric acid. The samples of citric acid were tested for ash, for oxalic, tartaric, and sulfuric acids, and for sugars. It appears that the purity of the samples of citric acid is quite sufficient for **fertilizer** control work. The subject should be studied further. (V) Ethyl ether. Four samples were exmd. for matter non-volatile at 100°. Evap 100. 100 cc. in a tared Pt dish to dryness over a steam bath. Dry at 100° to constant wt. The amt. of non-volatile matter may introduce errors as high as 1.5%. The method used, together with the question of the presence of alc. and H₂O and other possible impurities, should be studied further.

CC 7 (Analytical Chemistry)

=> D L35 1-41 CBIB ABS HITSTR HITIND

L35 ANSWER 1 OF 41 HCA COPYRIGHT 2009 ACS on STN

144:259993 Single-stage denitration. Mason, J. Bradley (Studsvik, Inc., USA). U.S. US 7011800 B1 20060314, 14 pp., Cont.-in-part of U.S. Ser. No. 185,616. (English). CODEN: USXXAM. APPLICATION: US 2002-246266 20020918. PRIORITY: WO 2000-US41323 20001019; US 2002-111148 20020419; US 2002-185616 20020628.

AB The present invention relates generally to a single step process for removing NO_x compds. from wastes, products, compds. and wastewaters. More specifically, the invention relates to a single step process utilizing a fluidized bed contactor to remove NO_x compds. from explosive, hazardous and/or radioactive materials. The present invention further relates to the conversion of alkali metals into a stable mineral form. A system and method using superheated steam

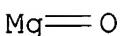
optionally augmented by oxygen for the redn. of nitrogen oxides present for reducing nitrogen oxides present in a wide variety of org. compds. The system includes a single reaction vessel, or optionally, multiple reaction vessels in operational communication. Redn. takes place quickly when a steam/oxygen mixt. is injected into the reaction vessel or vessels. Reducing additives are metered into the reaction vessel or vessels and/or provide energy input to reduce nitrates to nitrogen. The oxygen, when used, allows for some oxidn. of waste byproducts and provides an addnl. offset for thermal requirements of operation.

IT **1309-48-4, Magnesia, reactions**

(as fluidized bed material; single-stage steam-reforming denitration process utilizing fluidized bed contactor to remove nitrogen oxide compds. from explosive, hazardous and/or radioactive materials)

RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (CA INDEX NAME)



IT **11098-99-0, Molybdenum oxide**

(single-stage steam-reforming denitration process utilizing fluidized bed contactor to remove nitrogen oxide compds. from explosive, hazardous and/or radioactive materials)

RN 11098-99-0 HCA

CN Molybdenum oxide (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

INCL 423239100; 423235000

CC 61-2 (Water)

Section cross-reference(s): 50, 59, 60

IT **Fertilizers**

Organic compounds, processes

(treatment of; single-stage steam-reforming denitration process utilizing fluidized bed contactor to remove nitrogen oxide compds. from explosive, hazardous and/or radioactive materials)

IT **1309-48-4, Magnesia, reactions**

(as fluidized bed material; single-stage steam-reforming denitration process utilizing fluidized bed contactor to remove nitrogen oxide compds. from explosive, hazardous and/or radioactive materials)

IT 57-50-1, Sugar, reactions 7429-90-5D, Aluminum, compds.

7439-95-4D, Magnesium, compds. 7440-21-3D, Silicon, compds.

7440-70-2D, Calcium, compds. 7722-84-1, Hydrogen peroxide, reactions 7782-44-7, Oxygen, reactions 14265-44-2D,

Phosphate, compds.

(single-stage steam-reforming denitration process utilizing fluidized bed contactor to remove nitrogen oxide compds. from

explosive, hazardous and/or radioactive materials)

IT 814-91-5, Copper oxalate 1303-86-2, Boron oxide, uses 1307-96-6, Cobalt oxide, uses 1313-99-1, Nickel oxide, uses 1332-37-2, Iron oxide, uses 1344-70-3, Copper oxide 3251-23-8 7439-89-6, Iron, uses 7439-89-6D, Iron, compds. 7439-98-7, Molybdenum, uses 7439-98-7D, Molybdenum, compds. 7440-02-0, Nickel, uses 7440-02-0D, Nickel, compds. 7440-06-4, Platinum, uses 7440-06-4D, Platinum, compds. 7440-42-8, Boron, uses 7440-42-8D, Boron, compds. 7440-45-1, Cerium, uses 7440-45-1D, Cerium, compds. 7440-48-4, Cobalt, uses 7440-48-4D, Cobalt, compds. 7440-50-8, Copper, uses 7440-50-8D, Copper, compds. 10141-05-6, Cobalt nitrate **11098-99-0**, **Molybdenum oxide** 11129-18-3, Cerium oxide 11129-89-8, Platinum oxide 13138-45-9, Nickel nitrate 18130-42-2, Cobalt oxalate 20543-06-0, Nickel oxalate (single-stage steam-reforming denitration process utilizing fluidized bed contactor to remove nitrogen oxide compds. from explosive, hazardous and/or radioactive materials)

L35 ANSWER 2 OF 41 HCA COPYRIGHT 2009 ACS on STN

142:218417 Safe treatment of waste propellants and waste explosives and production of components for **fertilizer** therefrom. Jang, Min Seon; Park, Ju Eun; Park, Su Beom (Dong Woon Specialty Chemical Co., Ltd., S. Korea; Dongin Chemical Co., Ltd.). Repub. Korean Kongkae Taeho Kongbo KR 2003043875 A **20030602**, No pp. given (Korean). CODEN: KRXXA7. APPLICATION: KR 2003-29587 20030510.

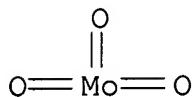
AB Provided is a method for treating waste propellants and explosives safely in a short time by mixing with yellow earth and hydrolyzing the mixt. in the presence of catalyst. Also, the hydrolyzed mixt. is neutralized for use as **fertilizer** components. The treatment method comprises the steps of: mixing waste propellants and explosives contg. nitrogen compds. with yellow earth having 5-30 wt.% of moisture and 0.02-0.05mm of size, in a wt. ratio of 1:0.1-2.0, and grinding; adding a catalyst selected from CuSO₄·xH₂O, **MoO₃** and CaSO₄·xH₂O, and an aq. alkali soln. (pH10-14) such as NaOH or KOH; and hydrolyzing at 0-80°C. The waste propellants and explosives are one or more of nitrogen compd. selected from nitrocellulose, nitroglycerin, 2,4-dinitrotoluene, potassium nitrate, aliph. nitrate esters, etc. The above hydrolyzed mixt. is neutralized with HCl, HNO₃ or H₃PO₄ to adjust pH of the mixt. between pH5-9 for use as **fertilizer** components.

IT **1313-27-5, Molybdenum oxide (MoO₃)**, uses

(prodn. of components for **fertilizer** from waste propellants and waste explosives)

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC ICM C05D009-00
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 Section cross-reference(s): 60
 ST propellant explosive waste **fertilizer**
 IT Nitrates, biological studies
 (esters; prodn. of components for **fertilizer** from waste
 propellants and waste explosives)
 IT Solid wastes
 (military; prodn. of components for **fertilizer** from
 waste propellants and waste explosives)
 IT **Fertilizers**
 (prodn. of components for **fertilizer** from waste
 propellants and waste explosives)
 IT Soils
 (yellow; prodn. of components for **fertilizer** from waste
 propellants and waste explosives)
 IT 55-63-0, Nitroglycerin 121-14-2, 2,4-Dinitrotoluene 7757-79-1,
 Potassium nitrate, biological studies 9004-70-0, Nitrocellulose
 (prodn. of components for **fertilizer** from waste
 propellants and waste explosives)
 IT 1310-58-3, Potassium hydroxide (K(OH)), uses 1310-73-2, Sodium
 hydroxide (Na(OH)), uses **1313-27-5, Molybdenum**
oxide (MoO₃), uses 7758-98-7, Copper sulfate
 (CuSO₄), uses 22879-15-8, Calcium sulfate (CaSO₄) hydrate
 (prodn. of components for **fertilizer** from waste
 propellants and waste explosives)

L35 ANSWER 3 OF 41 HCA COPYRIGHT 2009 ACS on STN
 141:139775 Method for production of granulated **fertilizer**
 mixtures. Andreev, G. D.; Vergunov, V. N.; Donskikh, N. A.;
 Shelud'ko, V. V.; Mogilevskaya, E. M. (Russia). Russ. RU 2225382 C1
 20040310, No pp. given (Russian). CODEN: RUXXE7. APPLICATION: RU
 2002-124044 20020909.

AB Granulated NPK and NP **fertilizer** mixts. are produced by
 mixing urea with one or more mineral or organomineral
fertilizers, such as ammonium nitrate, ammonium sulfate,
 ammophos, diammonium **phosphate**, potassium chloride,
 potassium sulfate, ground phosphorite (flour), biohum, potassium
 humate, and peat. The content of urea in NPK **fertilizer**
 mixts. can range 0.1-99.9% and the N/P2O5/K2O wt. ratio can be
 (15-25) : (9-17) : (9-17); the N/P2O5 wt. ratio in NP

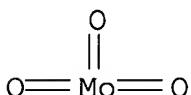
fertilizer mixt. can be (11-45) : (0.03-45). The 2 **fertilizer** mixts. may further contain one or more trace minerals (Mg, B, Mn, Co, Cu, Fe, Zn, Mo, Ni, Cr) as additives, such as talc, perlite, or carbon in amts. 0.1-0.3% and hydrophobic additive, such as polymethylhydroxysiloxane emulsion (GKZh-94) in amts. 0.04-0.4%. The prep'd. mixts. are moistened to 1.0-3.0% water content and granulated in std. industrial rotary granulator, after which granules are sieved. The granulated **fertilizer** mixts. have good physicomech. characteristics. The static strength of the granules without reinforcing additive is 2.3-2.9 MPa and with the additive 3.1-3.9 MPa. The granules have 100% friability and low caking and dusting. The addn. of GKZh-94 decreases granule hygroscopicity and increases the hygroscopic point by 1.0-2.4%. Yield granules of desired size is 85-88%.

IT 1309-48-4, **Magnesium oxide** (MgO)
(method for prodn. of granulated NPK and NP **fertilizer** mixts.)
), biological studies 1313-27-5, **Molybdenum trioxide**, biological studies

RN 1309-48-4 HCA
CN Magnesium oxide (MgO) (CA INDEX NAME)



RN 1313-27-5 HCA
CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC ICM C05C009-00
ICS C05G001-00
CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
ST NPK **fertilizer** urea granulation manuf
IT Polysiloxanes, biological studies
(Et hydrogen; method for prodn. of granulated NPK and NP **fertilizer** mixts.)
IT **Fertilizers**
(ammonium **phosphate**, Ammophos; method for prodn. of granulated NPK and NP **fertilizer** mixts.)
IT Granulation
Peat
(method for prodn. of granulated NPK and NP **fertilizer** mixts.)
IT Perlite

Phosphate rock

(method for prodn. of granulated NPK and NP **fertilizer** mixts.)

IT **Fertilizers**

(nitrogen-phosphorus-potassium; method for prodn. of granulated NPK and NP **fertilizer** mixts.)

IT **Fertilizers**

(nitrogen-phosphorus; method for prodn. of granulated NPK and NP **fertilizer** mixts.)

IT Humic acids

(potassium salts; method for prodn. of granulated NPK and NP ...
fertilizer mixts.)

IT 57-13-6, Urea, biological studies 1303-96-4, Borax

1309-48-4, Magnesium oxide (MgO)

, biological studies 1313-13-9, Manganese dioxide, biological studies **1313-27-5, Molybdenum trioxide**

, biological studies 1314-13-2, Zinc oxide (ZnO), biological studies 6484-52-2, Ammonium nitrate, biological studies

7439-89-6, Iron, biological studies 7439-95-4, Magnesium,

biological studies 7439-96-5, Manganese, biological studies

7439-98-7, Molybdenum, biological studies 7440-02-0, Nickel,

biological studies 7440-09-7, Potassium, biological studies

7440-42-8, Boron, biological studies 7440-44-0, Carbon, biological studies 7440-47-3, Chromium, biological studies 7440-48-4,

Cobalt, biological studies 7440-50-8, Copper, biological studies

7440-66-6, Zinc, biological studies 7447-40-7, Potassium chloride (KCl), biological studies 7722-64-7 7723-14-0, Phosphorus,

biological studies 7727-37-9, Nitrogen, biological studies

7758-99-8, Copper sulfate pentahydrate 7778-50-9, Potassium bichromate 7778-80-5, Sulfuric acid dipotassium salt, biological studies

7782-63-0, Ferrous sulfate heptahydrate 7783-20-2,

Ammonium sulfate, biological studies 7783-28-0, Diammonium

phosphate 7786-81-4, Nickel sulfate 7791-13-1

10043-35-3, Boric acid, biological studies 14807-96-6, Talc, biological studies

(method for prodn. of granulated NPK and NP **fertilizer** mixts.)

L35 ANSWER 4 OF 41 HCA COPYRIGHT 2009 ACS on STN

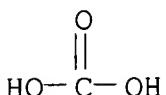
140:4552 Organomineral **fertilizer** comprising peat, urea, and a biocatalyst. Kasimova, L. V. (Sibirskii Nauchno-Issledovatel'skii Institut Torfa SO RASKhN, Russia). Russ. RU 2215718 C2
20031110, No pp. given (Russian). CODEN: RUXXE7.

APPLICATION: RU 1999-111341 19990525.

AB Organomineral **fertilizer** contains peat as a biol. active org. medium, urea, and, addnl., a biocatalyst comprising a peat-manure mixt., macro-, and microelements, in the following ratio of components, wt. %: urea 0.2-2.8; biocatalyst, 0.5-0.9; peat, the

balance.

- IT 497-19-8, Sodium carbonate, biological studies 1309-48-4, Magnesium oxide, biological studies (biocatalyst component; organomineral **fertilizer** comprising peat, urea, and biocatalyst)
- RN 497-19-8 HCA
- CN Carbonic acid sodium salt (1:2) (CA INDEX NAME)



●2 Na

- RN 1309-48-4 HCA
- CN Magnesium oxide (MgO) (CA INDEX NAME)



- IC ICM C05F011-02
- CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
- ST organomineral **fertilizer** peat urea biocatalyst
- IT Manure (biocatalyst component; organomineral **fertilizer** comprising peat, urea, and biocatalyst)
- IT Phosphate rock Trace elements, biological studies (biocatalyst component; organomineral **fertilizer** comprising peat, urea, and biocatalyst)
- IT Peat (organomineral **fertilizer** comprising peat, urea, and biocatalyst)
- IT Enzymes, biological studies (organomineral **fertilizer** comprising peat, urea, and biocatalyst)
- IT Fertilizers (organomineral; organomineral **fertilizer** comprising peat, urea, and biocatalyst)
- IT 497-19-8, Sodium carbonate, biological studies 1309-48-4, Magnesium oxide, biological studies 7446-20-0, Zinc sulfate heptahydrate 7758-99-8, Copper sulfate pentahydrate 7782-63-0, Iron sulfate heptahydrate 7785-87-7, Manganese sulfate 7791-20-0, Nickel

chloride hexahydrate 10124-43-3, Cobalt sulfate 11098-84-3,
 Ammonium **molybdenum oxide** 11105-06-9, Sodium
 vanadium oxide 11130-18-0, Titanium chloride 11138-47-9, Sodium
 perborate 39322-04-8, Chromium potassium oxide
 (biocatalyst component; organomineral **fertilizer**
 comprising peat, urea, and biocatalyst)

IT 57-13-6, Urea, biological studies
 (organomineral **fertilizer** comprising peat, urea, and
 biocatalyst)

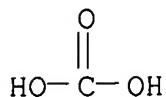
L35 ANSWER 5 OF 41 HCA COPYRIGHT 2009 ACS on STN
 139:350250 Preparation of magnetic composite **fertilizer**.

Yang, Hao (Nanjing Research Inst. of Soil, Chinese Academy of Sciences, Peop. Rep. China). Faming Zhuanli Shengqing Gongkai Shuomingshu CN 1385404 A **20021218**, 16 pp. (Chinese).
 CODEN: CNXXEV. APPLICATION: CN 2001-113615 20010515.

AB The title **fertilizer** contains common **fertilizer** and magnetic substance. The magnetic substance may be one or more of magnetite, pyrrhotite, ferrimagnet, ferrimanganese permanent magnetic material, and RE permanent magnetic material. The ratio of magnetic substance to ordinary **fertilizer** is 0.1-25:100. The particle size of the magnetic substance is 0.01-0.16 mm. The ordinary **fertilizer** may be from calcium **superphosphate**, concd. **superphosphate**, Ca-Mg-P **fertilizer**, calcium **phosphate**, defluorinated steel slag **fertilizer**, calcium **metaphosphate**, ground phosphorite, K₂SO₄, KCl, kiln ash K **fertilizer**, K-Mg **fertilizer**, K-Ca **fertilizer**, aminated calcium **superphosphate**, nitrated P **fertilizer**, ammonium **thiophosphate**, ammonium **phosphate**, K-P **fertilizer**, KNO₃, K-P and K-N-P composite **fertilizer**, lime, gypsum, MgSO₄, MgCl₂, MgCO₃, MgO, S, montroseite, (NH₄)₂Fe(SO₄)₂, FeSO₄, chelated Fe, (NH₄)₂Mn(SO₄)₂, MnCO₃, MnCl₂, MnO₂, chelated Mn, ZnSO₄, ZnCl₂, ZnO, chelated Zn, borax, H₃BO₃, CuSO₄, Cu₂O, chelated Cu, ammonium molybdate, sodium molybdate and MoO₃. The **fertilizer** is prep'd. by mixing the common **fertilizer** with magnetic substance.

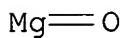
IT 546-93-0, **Magnesium carbonate**
 1309-48-4, **Magnesium oxide (MgO**
), biological studies 1313-27-5, **Molybdenum trioxide**, biological studies
 (manuf. of magnetic substance-contg. composite **fertilizer**)

RN 546-93-0 HCA
 CN Carbonic acid, magnesium salt (1:1) (CA INDEX NAME)

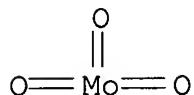


● Mg

RN 1309-48-4 HCA
 CN Magnesium oxide (MgO) (CA INDEX NAME)



RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC ICM C05G003-00
 ICS H01F001-01
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST multinutrient **fertilizer** magnetic substance magnetite
 pyrrhotite maghemite
 IT **Fertilizers**
 (calculm-magnesium-phosphorus; manuf. of magnetic
 substance-contg. composite **fertilizer**)
 IT **Fertilizer** experiment
 Magnetic materials
 Oryza sativa
 Triticum aestivum
 (manuf. of magnetic substance-contg. composite **fertilizer**
)
 IT Lime (chemical)
 Phosphate rock
 (manuf. of magnetic substance-contg. composite **fertilizer**
)
 IT **Fertilizers**
 (multinutrient; manuf. of magnetic substance-contg. composite
 fertilizer)
 IT **Fertilizers**
 (nitrogen-phosphorus-potassium; manuf. of magnetic
 substance-contg. composite **fertilizer**)

IT **Fertilizers**

(nitrogen-potassium; manuf. of magnetic substance-contg.
composite **fertilizer**)

IT **Fertilizers**

(phosphorus, nitrated; manuf. of magnetic substance-contg.
composite **fertilizer**)

IT **Fertilizers**

(phosphorus-potassium; manuf. of magnetic substance-contg.
composite **fertilizer**)

IT **Fertilizers**

(potassium, kiln ash; manuf. of magnetic substance-contg.
composite **fertilizer**)

IT **Fertilizers**

(potassium-calcium; manuf. of magnetic substance-contg. composite
fertilizer)

IT **Fertilizers**

(potassium-magnesium; manuf. of magnetic substance-contg.
composite **fertilizer**)

IT Slags

(steelmaking, fluorine-removed; manuf. of magnetic
substance-contg. composite **fertilizer**)

IT **546-93-0, Magnesium carbonate**

1066-97-3, Ammonium **dimethyldithiophosphate** 1303-96-4,

Borax 1309-38-2, Magnetite, biological studies **1309-48-4**

, **Magnesium oxide (MgO)**, biological

studies 1310-50-5, Pyrrhotite **1313-27-5**,

Molybdenum trioxide, biological studies

1314-13-2, Zinc oxide, biological studies 1317-38-0, Copper oxide,
biological studies 1317-39-1, Cuprous oxide, biological studies

7439-89-6, Iron, biological studies 7439-96-5, Manganese,

biological studies 7440-50-8, Copper, biological studies

7440-66-6, Zinc, biological studies 7447-40-7, Potassium chloride,
biological studies 7487-88-9, Magnesium sulfate, biological

studies 7631-95-0, Sodium molybdate 7646-85-7, Zinc chloride,
biological studies 7704-34-9, Sulfur, biological studies

7720-78-7, Ferrous sulfate 7733-02-0, Zinc sulfate 7757-79-1,
Potassium nitrate, biological studies 7758-23-8, Calcium

superphosphate 7758-98-7, Cupric sulfate, biological
studies 7778-77-0, Potassium dihydrogen **phosphate**

7778-80-5, Potassium sulfate, biological studies 7786-30-3,

Magnesium chloride, biological studies 10043-35-3, Boric acid
(H₃BO₃), biological studies 10045-89-3, Ammonium ferrous sulfate

10103-46-5, Calcium **phosphate** 10124-31-9, Ammonium

phosphate 11098-84-3, Ammonium molybdate 11129-60-5,

Manganese oxide 11132-78-8, Manganese chloride 12134-66-6,

Maghemite 12420-00-7, Montroseite 13397-24-5, Gypsum, biological
studies 14727-95-8, Ammonium manganese sulfate 17375-37-0,

Manganese carbonate 53801-86-8, Calcium **metaphosphate**

- (manuf. of magnetic substance-contg. composite **fertilizer**)
IT 13446-46-3, Ammonium **metaphosphate**
(manuf. of magnetic substance-contg. composite **fertilizer**)
- L35 ANSWER 6 OF 41 HCA COPYRIGHT 2009 ACS on STN
139:245315 Complex glass-like slow-release **fertilizer**.
Limbakh, I. Yu.; Karapetyan, G. O.; Karapetyan, K. G.; Kuznetsov, S. V.; Dokukina, A. F.; Smirnova, Z. A. (Russia). Russ. RU 2206552 C1
20030620, No pp. given (Russian). CODEN: RUXXE7.
APPLICATION: RU 2001-135966 20011221.
- AB Complex slow-release **fertilizer** comprises a **phosphate** glass-like **fertilizer** consisting of a phosphorus-potassium-micronutrient **fertilizer** contg. P205, CaO, MgO, Fe2O3, MnO, CuO, B2O3, CoO, SiO2, MoO3, K2O; and an urea-formaldehyde resin consisting of a linear-cyclic polymethylene urea, in the following ratio of components, wt. %: **phosphate fertilizer**, 75-90%; urea resin, 10-25%.
- IC ICM C05B019-00
ICS C05D001-00; C05C009-02; C05G001-00
- CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
- ST **fertilizer** complex glass slow release phosphorus potassium micronutrient urea
- IT Agrochemical formulations
(complex glass-like slow-release **fertilizer**)
- IT Aminoplasts
(complex glass-like slow-release **fertilizer** contg.)
- IT **Fertilizers**
(complex; complex glass-like slow-release **fertilizer**)
- IT **Fertilizers**
(macronutrient; complex glass-like slow-release **fertilizer**)
- IT **Fertilizers**
(phosphorus-potassium; complex glass-like slow-release **fertilizer**)
- IT **Fertilizers**
(slow-release; complex glass-like slow-release **fertilizer**)
- IT **Fertilizers**
(trace element; complex glass-like slow-release **fertilizer**)
- IT 7439-89-6, Iron, biological studies 7439-95-4, Magnesium, biological studies 7439-96-5, Manganese, biological studies 7439-98-7, Molybdenum, biological studies 7440-09-7, Potassium, biological studies 7440-21-3, Silicon, biological studies 7440-42-8, Boron, biological studies 7440-48-4, Cobalt, biological

studies 7440-50-8, Copper, biological studies 7440-70-2,
Calcium, biological studies 7723-14-0, Phosphorus, biological
studies

(complex glass-like slow-release **fertilizer** contg.)

IT 9011-05-6, Urea-formaldehyde resin

(complex glass-like slow-release **fertilizer** contg.)

L35 ANSWER 7 OF 41 HCA COPYRIGHT 2009 ACS on STN

134:71029 Preparation of **fertilizer** for sandy desertified
land. Mou, Qingquan; Lan, Mou (Peop. Rep. China). Faming Zhuanli
Shenqing Gongkai Shuomingshu CN 1257855 A **20000628**, 14
pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 1999-117441
19991210.

AB The **fertilizer** manuf. process comprises pulverizing
phosphate rock, milling, mixing with H₂SO₄, ageing, and
mixing with N **fertilizer**, K **fertilizer**, trace
element and water-absorbing substance. The RE compd., Ca compd.
and/or Mg compd. can be added to the **fertilizer** while
milling, mixing, or ageing, and their addns. are 0.16-2.5, 1.5-40,
and 1.5-40% resp. The ratio of aged product : N **fertilizer**
: K **fertilizer** : trace element : water-absorbing substance
is 45-60:22-40:8-14:0.05-0.5:1-10. The RE compd. is selected from
LaCl₃, La(NO₃)₃, La₂(SO₄)₃, La₂(CO₃)₃, CeCl₃, Ce₂(SO₄)₃, Ce₂(CO₃)₃,
etc.; the Ca compd. from **CaO**, Ca(NO₃)₂, CaSO₄, CaCl₂,
CaCO₃, Ca(OH)₂, Ca(Ac)₂, etc.; the Mg compd. from
MgO, MgCl₂, Mg(NO₃)₂, **MgCO₃**, MgSO₄, Mg(Ac)₂, etc.;
the N **fertilizer** from NH₄Cl, NH₄NO₃, NH₄HCO₃, (NH₄)₂SO₄,
or urea; the K **fertilizer** from KCl, KNO₃, K₂SO₄ or KH₂PO₄;
the trace element **fertilizer** from ZnSO₄, ZnO, ZnCO₃,
CuSO₄, MnSO₄, **MoO₃**, borax, H₃BO₃, etc; and the
water-absorbing substance from one or more of crosslinked acrylate,
starch grafted acrylic acid, starch grafted acrylonitrile,
CM-cellulose, poly(vinyl alc.)-acrylic acid graft polymer, mol.
sieve or zeolite. The **fertilizer** can be used as soil
amendment and it can improve fruit quality and quantity.

IT 471-34-1, Calcium carbonate, biological

studies 546-93-0, Magnesium carbonate

1305-78-8, Calcium oxide, biological

studies 1309-48-4, Magnesium oxide,

biological studies 1313-27-5, Molybdenum

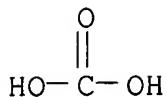
trioxide, biological studies

(manuf. of water-absorbing substance-contg. multinutrient

fertilizer for sandy desertified land)

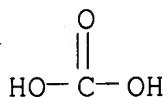
RN 471-34-1 HCA

CN Carbonic acid calcium salt (1:1) (CA INDEX NAME)



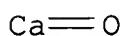
● Ca

RN 546-93-0 HCA
CN Carbonic acid, magnesium salt (1:1) (CA INDEX NAME)

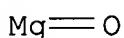


● Mg

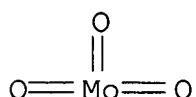
RN 1305-78-8 HCA
CN Calcium oxide (CaO) (CA INDEX NAME)



RN 1309-48-4 HCA
CN Magnesium oxide (MgO) (CA INDEX NAME)



RN 1313-27-5 HCA
CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC ICM C05G003-00
ICS C05B011-08; C05D009-02; C05D011-00
CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
ST multinutrient **fertilizer** sandy desertified land
IT Molecular sieves
Soil amendments

(manuf. of water-absorbing substance-contg. multinutrient **fertilizer** for sandy desertified land)

IT Limestone, biological studies

Phosphate rock

Rare earth compounds

Trace elements, biological studies

Zeolites (synthetic), biological studies

(manuf. of water-absorbing substance-contg. multinutrient **fertilizer** for sandy desertified land)

IT **Fertilizers**

(multinutrient; manuf. of water-absorbing substance-contg. multinutrient **fertilizer** for sandy desertified land)

IT **Fertilizers**

(nitrogen; manuf. of water-absorbing substance-contg. multinutrient **fertilizer** for sandy desertified land)

IT **Fertilizers**

(potassium; manuf. of water-absorbing substance-contg. multinutrient **fertilizer** for sandy desertified land)

IT Soils

(sandy, desertified; manuf. of water-absorbing substance-contg. multinutrient **fertilizer** for sandy desertified land)

IT 57-13-6, Urea, biological studies 62-54-4, Calcium acetate

79-10-7D, Acrylic acid, crosslinked or starch grafted, biological studies 107-13-1D, Acrylonitrile, starch grafted 142-72-3,

Magnesium acetate **471-34-1, Calcium**

carbonate, biological studies 537-00-8, Cerium acetate

537-01-9, Cerium carbonate **546-93-0, Magnesium**

carbonate 587-26-8, Lanthanum carbonate 917-70-4,

Lanthanum acetate 1066-33-7, Ammonium bicarbonate 1303-96-4,

Borax 1305-62-0, Calcium hydroxide, biological studies

1305-78-8, Calcium oxide, biological

studies 1308-56-1, Chalcopyrite, biological studies 1309-42-8,

Magnesium hydroxide **1309-48-4, Magnesium**

oxide, biological studies 1312-81-8, Lanthanum oxide

1313-13-9, Manganese dioxide, biological studies **1313-27-5**

, **Molybdenum trioxide**, biological studies

1314-13-2, Zinc oxide, biological studies 3486-35-9, Zinc

carbonate 6484-52-2, Ammonium nitrate, biological studies

7447-40-7, Potassium chloride, biological studies 7487-88-9,

Magnesium sulfate, biological studies 7631-95-0, Sodium molybdate

7733-02-0, Zinc sulfate 7757-79-1, Potassium nitrate, biological studies 7758-98-7, Copper sulfate, biological studies 7773-01-5,

Manganese chloride 7778-18-9, Calcium sulfate 7778-77-0,

Potassium dihydrogen **phosphate** 7778-80-5, Potassium

sulfate, biological studies 7783-20-2, Ammonium sulfate,

biological studies 7785-87-7, Manganese sulfate 7786-30-3,

Magnesium chloride, biological studies 7790-86-5, Cerium chloride

9002-89-5D, Poly(vinyl alcohol), acrylic acid graft 9004-32-4,

CM-cellulose 9005-25-8D, Starch, derivs., biological studies
 10043-35-3, Boric acid, biological studies 10043-52-4, Calcium
 chloride, biological studies 10099-58-8, Lanthanum chloride
 10099-59-9, Lanthanum nitrate 10099-60-2, Lanthanum(III) sulfate
 10124-37-5, Calcium nitrate 10377-60-3, Magnesium nitrate
 11098-84-3, Ammonium molybdate 11129-18-3, Cerium oxide
 11129-60-5, Manganese oxide 12125-02-9, Ammonium chloride,
 biological studies 17309-53-4, Cerium nitrate 24670-27-7
 (manuf. of water-absorbing substance-contg. multinutrient
fertilizer for sandy desertified land)

L35 ANSWER 8 OF 41 HCA COPYRIGHT 2009 ACS on STN

134:71028 Preparation of **fertilizer** for alkaline saline soil.

Mou, Qingquan; Lan, Mou (Peop. Rep. China). Faming Zhanli Shengqing
 Gongkai Shuomingshu CN 1257854 A **20000628**, 14 pp.
 (Chinese). CODEN: CNXXEV. APPLICATION: CN 1999-117442 19991210.

AB The **fertilizer** manuf. process comprises pulverizing
phosphate rock, milling, mixing with H₂SO₄, ageing, and
 mixing with N **fertilizer**, K **fertilizer** and rare
 earth compds. The RE compd., Ca compd. and/or Mg compd. can be
 added to the **fertilizer** while milling, mixing, or ageing,
 and their addns. are 0.16-2.5, 1.5-40, and 1.5-40% resp. The ratio
 of aged product : N **fertilizer** : K **fertilizer** :
 trace element is 48-65:20-45:8-16:0.05-0.5. The RE compd. is
 selected from LaCl₃, La(NO₃)₃, La₂(SO₄)₃, La₂(CO₃)₃, CeCl₃,
 Ce₂(SO₄)₃, Ce₂(CO₃)₃, etc.; the Ca compd. from **CaO**,
 Ca(NO₃)₂, CaSO₄, CaCl₂, **CaCO₃**, Ca(OH)₂, Ca(Ac)₂, etc.; the
 Mg compd. from **MgO**, MgCl₂, Mg(NO₃)₂, **MgCO₃**,
 MgSO₄, Mg(Ac)₂, etc.; the N **fertilizer** from NH₄Cl, NH₄NO₃,
 NH₄HCO₃, (NH₄)₂SO₄, or urea; the K **fertilizer** from KCl,
 KNO₃, K₂SO₄ or KH₂PO₄; and the trace element **fertilizer**
 from ZnSO₄, ZnO, ZnCO₃, CuSO₄, MnSO₄, **MoO₃**, borax, H₃BO₃,
 etc. The **fertilizer** can amend soil and improve fruit
 quality and quantity.

IT **471-34-1, Calcium carbonate**, biological

studies **546-93-0, Magnesium carbonate**

1305-78-8, Calcium oxide, biological

studies **1309-48-4, Magnesium oxide**,

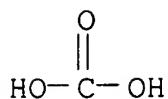
biological studies **1313-27-5, Molybdenum**

oxide (MoO₃), biological studies

(manuf. of multinutrient **fertilizer** for alk. saline
 soil)

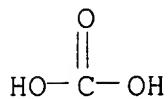
RN **471-34-1 HCA**

CN Carbonic acid calcium salt (1:1) (CA INDEX NAME)



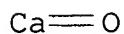
● Ca

RN 546-93-0 HCA
 CN Carbonic acid, magnesium salt (1:1) (CA INDEX NAME)

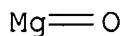


● Mg

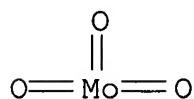
RN 1305-78-8 HCA
 CN Calcium oxide (CaO) (CA INDEX NAME)



RN 1309-48-4 HCA
 CN Magnesium oxide (MgO) (CA INDEX NAME)



RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC ICM C05G001-00
 ICS C05B011-08; C05D009-02; C05D011-00
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST multinutrient **fertilizer** alk saline soil
 IT Soils
 (alk. and saline; manuf. of multinutrient **fertilizer**

for alk. saline soil)

IT Soil amendments
(manuf. of multinutrient **fertilizer** for alk. saline soil)

IT Limestone, biological studies
Phosphate rock
Trace elements, biological studies.
(manuf. of multinutrient **fertilizer** for alk. saline soil)

IT **Fertilizers**
(multinutrient; manuf. of multinutrient **fertilizer** for alk. saline soil)

IT **Fertilizers**
(nitrogen; manuf. of multinutrient **fertilizer** for alk. saline soil)

IT **Fertilizers**
(potassium; manuf. of multinutrient **fertilizer** for alk. saline soil)

IT Minerals, biological studies
(rare earth; manuf. of multinutrient **fertilizer** for alk. saline soil)

IT 57-13-6, Urea, biological studies 62-54-4, Calcium acetate
142-72-3, Magnesium acetate **471-34-1**, **Calcium carbonate**, biological studies 537-00-8, Cerium acetate
546-93-0, **Magnesium carbonate**
587-26-8, Lanthanum carbonate 917-70-4, Lanthanum acetate
1066-33-7, Ammonium bicarbonate 1303-96-4, Borax 1305-62-0,
Calcium hydroxide, biological studies **1305-78-8**,
Calcium oxide, biological studies 1308-56-1,
Chalcopyrite, biological studies 1309-42-8, Magnesium hydroxide
1309-48-4, **Magnesium oxide**, biological
studies 1312-81-8, Lanthanum oxide 1313-13-9, Manganese dioxide,
biological studies **1313-27-5**, **Molybdenum oxide** (**MoO₃**), biological studies 1314-13-2, Zinc
oxide, biological studies 1317-38-0, Copper oxide, biological
studies 1330-43-4, Sodium borate 1344-43-0, Manganese monooxide,
biological studies 3486-35-9, Zinc carbonate 6484-52-2, Ammonium
nitrate, biological studies 7447-40-7, Potassium chloride,
biological studies 7487-88-9, Magnesium sulfate, biological
studies 7631-95-0, Sodium molybdate 7733-02-0, Zinc sulfate
7757-79-1, Potassium nitrate, biological studies 7773-01-5,
Manganese chloride 7778-18-9, Calcium sulfate 7778-77-0,
Potassium dihydrogen **phosphate** 7778-80-5, Potassium
sulfate, biological studies 7783-20-2, Ammonium sulfate,
biological studies 7785-87-7, Manganese sulfate 7786-30-3,
Magnesium chloride, biological studies 7790-86-5, Cerium chloride
10043-35-3, Boric acid, biological studies 10043-52-4, Calcium
chloride, biological studies 10099-58-8, Lanthanum chloride

10099-59-9, Lanthanum nitrate 10099-60-2, Lanthanum(III) sulfate
 10124-37-5, Calcium nitrate 10377-60-3, Magnesium nitrate
 11098-84-3, Ammonium molybdate 11129-18-3, Cerium oxide
 12125-02-9, Ammonium chloride, biological studies 13840-56-7,
 Sodium borate 17309-53-4, Cerium nitrate 24670-27-7
 (manuf. of multinutrient **fertilizer** for alk. saline
 soil)

L35 ANSWER 9 OF 41 HCA COPYRIGHT 2009 ACS on STN

132:321478 Multinutrient long-acting **fertilizer**. Liu,
 Chengcai (Peop. Rep. China). Faming Zhuanli Shengqing Gongkai
 Shuomingshu CN 1203902 A **19990106**, 11 pp. (Chinese).

CODEN: CNXXEV. APPLICATION: CN 1998-103015 19980715.

AB The long-acting **fertilizer** is composed of hygroscopic material 1-6%, dried fowl dung (or turf) 40-60%, urea 1-30%, (NH₄)₂SO₄ 8-40%, NH₄H₂PO₄ (or (NH₄)₂HPO₄) 10-32%, calcium **superphosphate** 10-40%, K₂SO₄ (or KCl) 10-30%, and trace element **fertilizer** 0.5-1.5%. The hygroscopic material is selected from crosslinked acrylate copolymer, acrylic acid-grafted starch, acrylonitrile-grafted starch polymer, CM-cellulose, acrylic acid-polyvinyl alc. graft copolymer, mol. sieve, and/or zeolite. The trace element **fertilizer** comprises Si-salt 0.01-1.5, CoCl₂ 0.01-1, MgSO₄ and/or **MgO** 10-30, Cu-salt 0.02-2, Zn-salt 2-6, Mn-salt 2-25, Mo-salt 0.01-5, Fe-salt 1-10, and B-salt 3-10%. The Si-salt is selected from one or more of SiO₂, Na₂SiO₃, ironmaking furnace slag, fly ash calcium silicate **fertilizer**, and elec. furnace slag; the Cu-salt from one or more of CuSO₄·5H₂O, CuSO₄·H₂O, and chalcopyrite; the Zn-salt from one or more of ZnSO₄·7H₂O, ZnSO₄·H₂O, ZnO, and ZnCO₃; the Mn-salt from one or more of MnSO₄, MnO, MnCl₂, MnO₂, ammonium molybdate, sodium molybdate, and Mn₂O₃; the Fe-salt from one or more of FeSO₄·7H₂O, FeSO₄·4H₂O, and Fe(SO₄)₂·12H₂O; and the B-salt from one or more of borax, H₃BO₃; and sodium borate.

IT **1309-48-4, Magnesia**, biological studies

1313-29-7, Molybdenum sesquioxide
 (multinutrient long-acting **fertilizer**)

RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg=O

RN 1313-29-7 HCA

CN Molybdenum oxide (Mo₂O₃) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM C05G001-00

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)

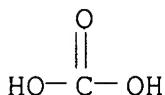
ST multinutrient **fertilizer** hygroscopic material
 IT Feces
 Hygroscopic substances
 (multinutrient long-acting **fertilizer**)
 IT **Fertilizers**
 (multinutrient; multinutrient long-acting **fertilizer**)
 IT **Fertilizers**
 (trace element; multinutrient long-acting **fertilizer**)
 IT 57-13-6, Urea, biological studies 1303-96-4, Borax 1308-56-1,
 Chalcopyrite, biological studies **1309-48-4**,
 Magnesia, biological studies 1313-13-9, Manganese dioxide,
 biological studies **1313-29-7**, Molybdenum sesquioxide
 1314-13-2, Zinc oxide, biological studies 1344-09-8, Sodium
 silicate 1344-43-0, Manganese monooxide, biological studies
 3486-35-9, Zinc carbonate 7446-19-7, Zinc sulfate, monohydrate
 7446-20-0, Zinc sulfate, heptahydrate 7447-40-7, Potassium
 chloride, biological studies 7487-88-9, Magnesium sulfate,
 biological studies 7631-86-9, Silicon dioxide, biological studies
 7631-95-0, Sodium molybdate 7646-79-9, Cobalt chloride, biological
 studies 7722-76-1, Ammonium dihydrogen **phosphate**
 7758-23-8, Calcium **superphosphate** 7758-99-8, Copper
 sulfate, pentahydrate 7773-01-5, Manganese chloride 7778-80-5,
 Potassium sulfate, biological studies 7782-63-0, Ferrous sulfate,
 heptahydrate 7783-20-2, Ammonium sulfate, biological studies
 7783-28-0, Ammonium hydrogen **phosphate** 7785-87-7,
 Manganese sulfate 10043-35-3, Boric acid, biological studies
 10045-89-3, Ammonium ferrous sulfate 12027-67-7, Ammonium
 molybdate 13840-56-7, Sodium borate 20908-72-9, Ferrous sulfate,
 tetrahydrate
 (multinutrient long-acting **fertilizer**)

L35 ANSWER 10 OF 41 HCA COPYRIGHT 2009 ACS on STN
 132:238921 Fibrous materials containing active substances for treatment
 or purification of liquids. Oeste, Franz D.; Haas, Rainer
 (Germany). PCT Int. Appl. WO 2000016877 A1 **20000330**, 86
 pp. DESIGNATED STATES: W: AE, AL, AU, BA, BB, BG, BR, CA, CN, CR,
 CU, CZ, DM, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK,
 LR, LT, LV, MG, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT,
 UA, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT,
 BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR,
 IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (German).
 CODEN: PIXXD2. APPLICATION: WO 1999-EP6755 19990913. PRIORITY: DE
 1998-19842528 19980918; DE 1998-19853158 19981118; DE 1998-19855646
 19981202; DE 1999-19904670 19990204; DE 1999-19915177 19990403; DE
 1999-19917399 19990416; DE 1999-19924742 19990531; DE 1999-19926180
 19990609; DE 1999-19928460 19990624; DE 1999-19930764 19990705; DE
 1999-19937853 19990813; DE 1999-19939901 19990822.

AB Fibrous materials (e.g., cellulose fibers) contg. particles and

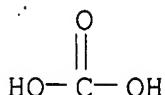
active substances (e.g., adsorbents, complexing agents, flocculants, nutrients, biocides) for treatment or purifn. of liqs. (e.g., beverages, liq. foods, waters and wastewaters), comprise active substances which are coated or impregnated on the fibers or particles, distributed nonhomogeneously in a predetd. distribution. Addnl., either the active substance is not provided in another portion of the fibers or particles or is provided in a quantity which differs from the first predetd. proportion of the fibers or particles. The fibrous materials can be formed into filter paper or fiber filters. The active substances are first released when using the fibrous materials, becoming available for liq. treatment. In examples, the particles were activated C, chitosan or barite particles and the active substances were humic acids, alginic acid, Na alginate or FeCl₃ for water softening, heavy metals removal and water dechlorination.

IT 471-34-1, Calcium carbonate, processes
 497-19-8, Sodium carbonate, processes
 546-93-0, Magnesium carbonate
 1313-27-5, Molybdenum oxide, processes
 (fibrous materials contg. active substances for treatment or purifn. of liqs.)
RN 471-34-1 HCA
CN Carbonic acid calcium salt (1:1) (CA INDEX NAME)



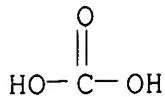
● Ca

RN 497-19-8 HCA
CN Carbonic acid sodium salt (1:2) (CA INDEX NAME)



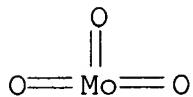
●2 Na

RN 546-93-0 HCA
CN Carbonic acid, magnesium salt (1:1) (CA INDEX NAME)



● Mg

RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC ICM B01D039-00
 ICS D21H027-08; D21H021-14; A23L002-52; A23L002-70; C02F001-00;
 D21H023-04
 CC 48-1 (Unit Operations and Processes)
 Section cross-reference(s): 11, 17, 43, 60, 61, 63
 IT Alkaline earth hydroxides
 Carbohydrates, processes
 Carbonaceous materials (technological products)
 Carbonates, processes
 Carboxylic acids, processes
 Enzymes, processes
Fertilizers
 Fullerenes
 Glass, processes
 Glass microspheres
 Humic acids
 Hydroxides (inorganic)
 Metals, processes
 Oxides (inorganic), processes
 Phosphates, processes
 Plastics, processes
 Polyamines
 Polysaccharides, processes
 Proteins, general, processes
 Silicates, processes
 Trace elements, processes
 Vitamins
 Zeolites (synthetic), processes
 (fibrous materials contg. active substances for treatment or
 purifn. of liqs.)
 IT 50-99-7, D-Glucose, processes 409-21-2, Silicon carbide, processes

463-79-6D, Carbonic acid, alk. earth salts, processes

471-34-1, Calcium carbonate, processes

497-19-8, Sodium carbonate, processes

546-93-0, Magnesium carbonate

584-08-7, Potassium carbonate 1305-62-0, Calcium hydroxide, processes 1306-38-3, Cerium oxide, processes 1309-42-8, Magnesium hydroxide 1310-53-8, Germanium oxide, processes

1313-13-9, Manganese oxide, processes **1313-27-5**,

Molybdenum oxide, processes 1313-96-8, Niobium

oxide 1314-23-4, Zirconium oxide, processes 1314-35-8, Tungsten oxide, processes 1314-61-0, Tantalum oxide 1332-37-2, Iron

oxide, processes 1333-74-0, Hydrogen, processes 1343-98-2,

Silicon hydroxide 1344-09-8, Water glass 1344-28-1, Aluminum oxide, processes 7440-42-8, Boron, processes 7440-66-6, Zinc,

processes 7631-86-9, Silicon oxide, processes 7705-08-0, Ferric chloride, processes 7782-44-7, Oxygen, processes 9002-18-0, Agar

9003-01-4, Polyacrylic acid 9004-34-6, Cellulose, processes

9005-32-7, Alginic acid 9012-76-4, Chitosan 11113-66-9, Iron hydroxide 11138-66-2, Xanthan 12026-24-3, Tin hydroxide

12055-23-1, Hafnium oxide 12626-88-9, Manganese hydroxide

12651-23-9, Titanium hydroxide 12710-38-2, Niobium hydroxide

13462-86-7, Barite 13463-67-7, Titanium oxide, processes

14475-63-9, Zirconium hydroxide 15021-18-8, Germanium hydroxide

Ge(OH)4 18282-10-5, Tin oxide (SnO2) 21645-51-2, Aluminum

hydroxide, processes 37349-51-2, Tantalum hydroxide 37382-23-3,

Cerium hydroxide 39302-34-6, Platinum hydride 107477-35-0,

Tungsten hydroxide 126853-99-4, Molybdenum hydroxide

127211-73-8, Hafnium hydroxide

(fibrous materials contg. active substances for treatment or purifn. of liqs.)

L35 ANSWER 11 OF 41 HCA COPYRIGHT 2009 ACS on STN

130:281406 Multi-effect inorganic-organic compound **fertilizer**.

Ding, Xinmin; Wang, Yanli; Zhong, Ming (Niute New Technology Co., Beijing, Peop. Rep. China). Faming Zhuanli Shengqing Gongkai Shuomingshu CN 1114299 A **19960103**, 15 pp. (Chinese).

CODEN: CNXXEV. APPLICATION: CN 1995-107433 19950707.

AB The multi-effect inorg.-org. compd. **fertilizer** is prep'd.

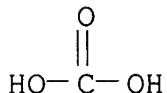
by blending, stirring, crushing, and activating const., medium, and micro nutrient elements and org. nutrient component to bar or granular **fertilizer**. The total content of inorg. const.

nutrient element N, P, and K is $\Phi > 27\%$, and the mass ratio of medium-micro nutrient element Mg, Na, B, Mo, Fe, Mn, Cu, Zn, Cl and Co to const. element is 4-6%, and that of org. nutrient component to inorg. nutrient element is 18-22%. The inorg. const. element is composed of N 17-32, P 1.6- 5.2, and K 3.3-8.1%, and their corresponding compds. were: N- $2SO_4$, NH_4NO_3 , urea and NH_4Cl , P- P_2O_5 , $(NH_4)_2HPO_4$, and Ca superphosphate, and K- K_2SO_4 and KCl . The inorg.

micro element is composed of Mg 0.1-2, Na 0.01- 0.54, B 0.02-0.23, Mo 0.01-0.1, Fe 0.04-0.53, Mn 0.10-0.66, Cu 0.001-0.08, Zn 0.04-0.3, Cl 0.01-0.05, and Co 0.0001-0.0006%, and their corresponding compds. were Mg-MgSO₄ and MgHPO₄, Na- Na₂SO₄ and **Na₂CO₃**, B-borax and H₃BO₃, Mo-2MoO₄, Na₂MoO₄ and **MoO₃**, Fe-FeSO₄ and NH₄FePO₄, Mn-MnSO₄ and MnCl₂, Cu-CuSO₄ and CuCl₂, Zn- ZnSO₄ and ZnCl₂, Cl-chloride and chlorate, and Co-CoSO₄ and CoCl₂. The org. nutrient component is fowl and animal dung, or rejected material of slaughter house, or their mixt., which should be pretreated by treating under high-temp. and high- pressure to deodorize, sterilize and kill insect and egg, then adding org. soil **fertilizer**, stirring and crushing. The fowl and animal dung is chick dung, or pig, cow and sheep dung, and the rejected material of slaughter house is fowl and animal waste blood, hoof horn, bone, fur, meat, and residue in stomach of pig.

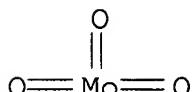
IT 497-19-8, **Sodium carbonate**, biological studies 1313-27-5, **Molybdenum trioxide**, biological studies (multi-effect inorg.-org. compd. **fertilizer**)

RN 497-19-8 HCA
CN Carbonic acid sodium salt (1:2) (CA INDEX NAME)



●2 Na

RN 1313-27-5 HCA
CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC ICM C05G001-00
ICS C05F003-00; C05F001-00
CC 19-5 (Fertilizers, Soils, and Plant Nutrition)
ST compd **fertilizer**
IT Wastes
 (agricultural; multi-effect inorg.-org. compd. **fertilizer**)
IT Blood
Excretions

Feces
 Nutrition, plant
 Soil reclamation
 (multi-effect inorg.-org. compd. **fertilizer**)
 IT Trace elements, biological studies
 (multi-effect inorg.-org. compd. **fertilizer**)
 IT **Fertilizers**
 (org.-inorg. compd.; multi-effect inorg.-org. compd.
fertilizer)
 IT 57-13-6, Urea, biological studies **497-19-8**, Sodium
carbonate, biological studies **1313-27-5**,
Molybdenum trioxide, biological studies
 1314-56-3, Phosphorus pentoxide, biological studies 1317-38-0,
 Cupric oxide, biological studies 6484-52-2, Ammonium nitrate,
 biological studies 7439-89-6, Iron, biological studies
 7439-95-4, Magnesium, biological studies 7439-96-5, Manganese,
 biological studies 7439-98-7, Molybdenum, biological studies
 7440-09-7, Potassium, biological studies 7440-42-8, Boron,
 biological studies 7440-48-4, Cobalt, biological studies
 7440-50-8, Copper, biological studies 7440-66-6, Zinc, biological
 studies 7440-70-2, Calcium, biological studies 7447-40-7,
 Potassium chloride, biological studies 7487-88-9, Magnesium
 sulfate, biological studies 7631-95-0, Sodium molybdate
 7646-79-9, Cobalt chloride, biological studies 7646-85-7, Zinc
 chloride, biological studies 7720-78-7, Ferrous sulfate
 7723-14-0, Phosphorus, biological studies 7727-37-9, Nitrogen,
 biological studies 7733-02-0, Zinc sulfate 7757-82-6, Sodium
 sulfate, biological studies 7757-86-0, Magnesium hydrogen
 phosphate 7758-23-8, Calcium superphosphate 7758-98-7, Cupric
 sulfate, biological studies 7778-80-5, Potassium sulfate,
 biological studies 7782-50-5, Chlorine, biological studies
 7783-20-2, Ammonium sulfate, biological studies 7783-28-0,
 Ammonium hydrogen phosphate 7785-87-7, Manganese sulfate
 10043-35-3, Boric acid, biological studies 10124-43-3, Cobalt
 sulfate 11098-84-3, Ammonium molybdate 11132-78-8, Manganese
 chloride 12125-02-9, Ammonium chloride, biological studies
 52767-99-4, Ammonium iron phosphate
 (multi-effect inorg.-org. compd. **fertilizer**)

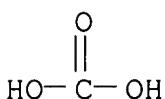
L35 ANSWER 12 OF 41 HCA COPYRIGHT 2009 ACS on STN
 121:204379 Original Reference No. 121:37207a,37210a Slow-release
fertilizer and active synthetic soil. Ming, Douglas C.;
 Golden, D. C.; Allen, Earl R.; Henninger, Donald L. (USA). PCT Int.
 Appl. WO 9408896 A1 **19940428**, 25 pp. DESIGNATED STATES:
 W: AT, AU, BB, BG, BR, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP,
 KR, KZ, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK,
 UA, US; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FR, GA,
 GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG.

(English). CODEN: PIXXD2. APPLICATION: WO 1993-US9906 19931015.
PRIORITY: US 1992-963348 19921016; US 1992-963349 19921016.

AB A synthetic soil/**fertilizer** for horticultural application having all the nutrients essential for plant growth is disclosed. The soil comprises a synthetic apatite **fertilizer** having sulfur, magnesium and micronutrients dispersed in a calcium **phosphate** matrix, a zeolite cation exchange medium satd. with a charge of potassium and nitrogen cations, and an optional pH buffer. Moisture dissolves the apatite and mobilizes the nutrient elements from the apatite matrix and the zeolite charge sites. Thus, a synthetic apatite compn. was prep'd. by an inorg. replacement reaction by adding a soln. comprising Mg(NO₃)₂ 13.499, Fe(NO₃)₂.6H₂O 3.627, MnSO₄.H₂O 0.5408, Zn(NO₃)₂ 0.5652 and Cu(NO₃)₂.2.5H₂O 0.1464 g in 20 mL water to a soln. of (NH₄)₂HPO₄ 43.32, (NH₄)₂CO₃ 11.93, (NH₄)Cl 1.011, H₃BO₄ 0.779, (NH₄)₆Mo₇O₂₄.4H₂O 0.00098, and (NH₄)₂SO₄ 2.4974 g in 0.5 L of 20 wt. % NH₄OH in water; mixing vigorously for several seconds, and adding the resultant soln. to a soln. of Ca(NO₃)₂.4H₂O 141.52 g in 0.5 L of 20 wt. % NH₄OH in water. The mixt. was stirred vigorously for 5 min and then allowed to stand for 18 h to ppt. the product, which showed x-ray diffraction peaks corresponding to peaks for natural hydroxyapatites. After dissoln. of 0.5 g of the apatite compn. shaken in 80 mL water at pH 8.7 for 96 h, equil. ion concns. were P 1.33, Ca 13.6, Mg 29.8, and S 5.6 mg/L; DTPA-extractable Mn 121, Fe 244, Cu 6, and Zn 31 mg/kg; and B 4.4, Mo <0.02, and Cl 0.6 mg/L.

IT 497-19-8, **Sodium carbonate**, uses
(soly.-controlling agent, in slow-release **fertilizer**
manuf.)

RN 497-19-8 HCA
CN Carbonic acid sodium salt (1:2) (CA INDEX NAME)



●2 Na

IC ICM C01B025-16
ICS C05B007-00; C05G005-00
CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
Section cross-reference(s): 49
ST **fertilizer** soil substitute synthetic apatite; zeolite
synthetic apatite soil substitute
IT Smectite-group minerals
Zeolite-group minerals

- (cation-exchanged, in slow-release **fertilizer** manuf.)
 - IT Soil substitutes
 - (manuf. of, by dispersion of nutrients in calcium **phosphate** matrix and admixt. of cation-exchanged zeolite)
 - IT Mineral elements
 - (slow-release **fertilizer** contg. synthetic apatite and)
 - IT Carbonates, uses
 - Silicates, uses
 - (soly.-controlling agents, in slow-release **fertilizer** manuf.)
 - IT Apatite-group minerals
 - (synthetic, prepn. and use as slow-release **fertilizer** and soil substitute of)
 - IT Zeolites, uses
 - (A, cation-exchanged, in slow-release **fertilizer** manuf.)
 - IT Zeolites, uses
 - (X, cation-exchanged, in slow-release **fertilizer** manuf.)
 - IT Zeolites, uses
 - (cation-exchanged, in slow-release **fertilizer** manuf.)
 - IT Trace elements, uses
 - (essential, slow-release **fertilizer** contg. synthetic apatite and)
 - IT Minerals
 - (phylllosilicate, cation-exchanged, in slow-release **fertilizer** manuf.)
 - IT **Fertilizers**
 - (slow-release, manuf. of, by dispersion of nutrients in calcium **phosphate** matrix and admixt. of cation-exchanged zeolite)
 - IT 78-10-4, Ethyl orthosilicate 506-87-6, Ammonium carbonate 1318-00-9D, Vermiculite, cation-exchanged 1330-43-4, Sodium tetraborate 1332-77-0, Potassium tetraborate 3251-23-8, Copper nitrate ($Cu(NO_3)_2$) 7447-39-4, Copper chloride ($CuCl_2$), uses 7447-40-7, Potassium chloride, uses 7646-85-7, Zinc chloride ($ZnCl_2$), uses 7647-14-5, Sodium chloride, uses 7705-08-0, Ferric chloride, uses 7720-78-7, Ferrous sulfate 7722-64-7, Potassium permanganate 7733-02-0, Zinc sulfate 7757-82-6, Sodium sulfate, uses 7758-94-3, Ferrous chloride 7773-01-5, Manganese dichloride 7775-19-1, Sodium metaborate 7778-80-5, Potassium sulfate, uses 7779-88-6, Zinc nitrate 7783-20-2, Ammonium sulfate ($(NH_4)_2SO_4$), uses 7783-28-0, Ammonium **phosphate** ($(NH_4)_2HPO_4$) 7785-87-7, Manganese sulfate ($MnSO_4$) 7786-30-3, Magnesium chloride, uses 7790-98-9, Ammonium perchlorate 7803-63-6, Ammonium bisulfate 10028-22-5, Ferric sulfate 10034-81-8, Magnesium perchlorate 10043-52-4, Calcium chloride ($CaCl_2$), uses 10102-02-0, Zinc nitrite 10124-37-5, Calcium nitrate ($Ca(NO_3)_2$) 10137-74-3, Calcium chlorate 10192-29-7, Ammonium chlorate

10192-30-0, Ammonium bisulfite 10196-04-0, Ammonium sulfite
 10294-64-1, Potassium manganate 10326-21-3, Magnesium chloride
 10377-60-3, Magnesium nitrate ($Mg(NO_3)_2$) 10377-66-9, Manganese(II)
 nitrate 10421-48-4, Ferric nitrate 12007-58-8, Ammonium
 tetraborate 12027-67-7, Ammonium paramolybdate 12058-33-2,
 Sodium paramolybdate 12125-02-9, Ammonium chloride (NH_4Cl), uses
 12173-10-3D, Clinoptilolite, cation-exchanged 12173-98-7D,
 Mordenite, cation-exchanged 12174-18-4D, Phillipsite,
 cation-exchanged 12251-32-0D, Chabazite, cation-exchanged
 12339-22-9, Molybdenum **sodium oxide** ($Mo_4Na_2O_13$)
 13709-94-9 13780-06-8, Calcium nitrite 14013-86-6, Iron nitrate
 ($Fe(NO_3)_2$) 14984-71-5 15070-34-5, Magnesium nitrite
 15190-32-6, Molybdenum **sodium oxide** ($Mo_3Na_2O_10$)
 15593-15-4, Copper chloride ($CuCl_3$) 17097-12-0 18488-90-9,
 Manganese nitrite 18488-91-0 18488-95-4 23488-13-3, Hydrazine
phosphate 25156-16-5, Boric acid (H_3BO_4) 37211-00-0,
 Potassium molybdate 54390-90-8, Ammonium **hypophosphate**
 57455-64-8 158115-20-9 158165-97-0, Ammonium **molybdenum**
oxide peroxide

(in slow-release **fertilizer** manuf.)

- IT 10103-46-5, Calcium **phosphate**
 (pptn. of, in slow-release **fertilizer** manuf.)
- IT 12167-74-7P, Calcium hydroxy **phosphate** ($Ca_5(OH)(PO_4)_3$)
 (prepn. and use as slow-release **fertilizer** and soil
 substitute of)
- IT 7439-89-6, Iron, uses 7439-95-4, Magnesium, uses 7439-96-5,
 Manganese, uses 7439-98-7, Molybdenum, uses 7440-09-7,
 Potassium, uses 7440-21-3, Silicon, uses 7440-23-5, Sodium, uses
 7440-42-8, Boron, uses 7440-50-8, Copper, uses 7440-66-6, Zinc,
 uses 7440-70-2, Calcium, uses 7704-34-9, Sulfur, uses
 7723-14-0, Phosphorus, uses 16887-00-6, Chloride, uses
 (slow-release **fertilizer** contg. apatite and)
- IT 144-55-8, Sodium bicarbonate, uses 298-14-6, Potassium bicarbonate
497-19-8, **Sodium carbonate**, uses
 584-08-7, Potassium carbonate 1066-33-7, Ammonium bicarbonate
 1344-09-8, Sodium silicate 6834-92-0, Sodium metasilicate
 10006-28-7, Potassium metasilicate 12794-95-5, Ammonium silicate
 13637-97-3, Potassium disilicate 13870-28-5, Sodium disilicate
 15859-24-2, Sodium orthosilicate 16693-01-9
 (soly.-controlling agent, in slow-release **fertilizer**
 manuf.)
- IT 14798-03-9, Ammonium, uses
 (zeolite satd. with, in slow-release **fertilizer** manuf.)

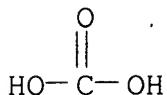
Barnabas (Magyar Viscosa Gyar, Hung.). Hung. Teljes HU 56479 A2
19910930, 17 pp. (Hungarian). CODEN: HUXXBU. APPLICATION:
 HU 1990-368 19900126.

AB Pesticides and **fertilizers** are encapsulated into cellulose beads, for sustained release. Air was vacuumed out from 30 kg cellulose beads, followed by treatment of the beads with 25 dm³ 24% oxamil, to give a sustained-release compn. Equipment for the process is presented.

IT **471-34-1, Calcium carbonate, biological studies** **546-93-0, Magnesium carbonate**
 (fertilizer, cellulose bead-encapsulated, for sustained release)

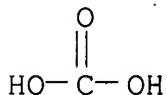
RN 471-34-1 HCA

CN Carbonic acid calcium salt (1:1) (CA INDEX NAME)



● Ca

RN 546-93-0 HCA
CN Carbonic acid, magnesium salt (1:1) (CA INDEX NAME)

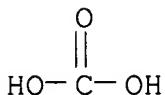


● Mg

IC ICM A01N025-10
CC 5-4 (Agrochemical Bioregulators)
 Section cross-reference(s): 19
IT **Fertilizers**
 (sustained-release, cellulose bead-encapsulated)
IT 57-13-6, Urea, biological studies **471-34-1**,
Calcium carbonate, biological studies
546-93-0, Magnesium carbonate
 6484-52-2, Ammonium nitrate, biological studies 7722-76-1,
 Monoammonium phosphate 7733-02-0, Zinc sulfate 7785-87-7,
 Manganese sulfate 9011-05-6 10043-35-3, Boric acid, biological
 studies 11098-84-3, Ammonium **molybdenum oxide**

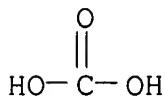
(**fertilizer**, cellulose bead-encapsulated, for sustained release)

- L35 ANSWER 14 OF 41 HCA COPYRIGHT 2009 ACS on STN
 116:20332 Original Reference No. 116:3589a,3592a Solid
fertilizer for culturing ginseng. Jin, Guangyu; Qi, Anguo
 (Jilin Chemical Industry Corp., Peop. Rep. China). Faming Zhuanli
 Shengqing Gongkai Shuomingshu CN 1052474 A **19910626**, 8 pp.
 (Chinese). CODEN: CNXXEV. APPLICATION: CN 1989-109288 19891211.
 AB The title **fertilizer** contains isobutylidene diurea, Ge
 compds., and K **metaphosphate**. The **fertilizer** is
 highly effective and slow-release and may further contain trace
 elements, such as Zn, Mo, and Cu. Thus, a **fertilizer** was
 formulated contg. 3.87 kg isobutylidene diurea, 0.9 kg GeO, 6.01 kg
 K **metaphosphate**, 0.10 kg graphite, and 0.02 kg poly(vinyl
 alc.).
 IT **471-34-1, Calcium carbonate**, biological
 studies **546-93-0, Magnesium carbonate**
1305-78-8, Calcium oxide, biological
 studies **1309-48-4, Magnesium oxide**,
 biological studies **1313-27-5, Molybdenum**
trioxide, biological studies
 (**fertilizer** contg., for ginseng culturing)
 RN 471-34-1 HCA
 CN Carbonic acid calcium salt (1:1) (CA INDEX NAME)



● Ca

- RN 546-93-0 HCA
 CN Carbonic acid, magnesium salt (1:1) (CA INDEX NAME)



● Mg

- RN 1305-78-8 HCA

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

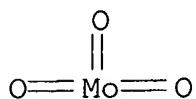
RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg=O

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC ICM C05G001-00

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)

ST ginseng **fertilizer** isobutylidenediurea germanium

metaphosphate; urea isobutylidene germanium

metaphosphate fertilizer ginseng

IT Ginseng

(culturing of, **fertilizer** contg. isobutylidene diurea
and germanium and potassium **metaphosphate** for)

IT **Fertilizers**

(sustained-release, solid, isobutylidene diurea- and germanium-
and potassium **metaphosphate**-contg., for ginseng
culturing)

IT 471-34-1, **Calcium carbonate**, biological

studies 546-93-0, **Magnesium carbonate**

1303-96-4, Borax 1305-78-8, **Calcium**

oxide, biological studies 1309-48-4,

Magnesium oxide, biological studies 1310-53-8,

Germanium oxide, biological studies 1313-27-5,

Molybdenum trioxide, biological studies

1314-13-2, Zinc oxide, biological studies 1344-70-3, Copper oxide

3486-35-9, Zinc carbonate 6104-30-9, Isobutylidene diurea

7487-88-9, Magnesium sulfate, biological studies 7631-95-0, Sodium

molybdate 7733-02-0, Zinc sulfate 7757-93-9, Calcium

hydrogenphosphate 7758-98-7, Copper sulfate, biological

studies 7779-88-6, Zinc nitrate 7785-87-7, Manganese sulfate

7790-53-6, Potassium **metaphosphate** 9002-89-5, Poly(vinyl

alcohol) 10043-35-3, Boric acid, biological studies 10124-37-5,

Calcium nitrate 10377-60-3, Magnesium nitrate 11129-60-5,

Manganese oxide 12027-67-7, Ammonium paramolybdate 17375-37-0,

Manganese carbonate
(fertilizer contg., for ginseng culturing)

L35 ANSWER 15 OF 41 HCA COPYRIGHT 2009 ACS on STN
 114:100493 Original Reference No. 114:17135a,17138a Trace element
fertilizers. Nonomura, Tsutomu (Fertilizantes Mitsui S. A.
 Industria e Comercio, Brazil). Braz. Pedido PI BR 8905535 A
19900522, 13 pp. (Portuguese). CODEN: BPXXDX.

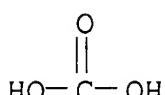
APPLICATION: BR 1989-5535 19891030.

AB Trace element **fertilizers** are manufd. by heating mixts.
 contg. serpentine, magnesite, limestone or feldspar, soda ash or
 slag, as well as Zn, B, Fe, Mn, Co and Mo in an elec. furnace, and
 then rapidly cooling. A mixt. was made of serpentine 191,
 magnesite 39, limestone, 51, calamine 60, CuO 14, borax 91, hematite
 20, ferromanganite 33 and **Mo trioxide** 1 kg, such
 as to contain Zn 5.0, B 24, Fe 4.0, Mn 2.5, Cu 1.3, and Mo 0.15%,
 with a **MgO/SiO₂** ratio of 1.01 and a **CaO/SiO₂**
 ratio of 0.24. The mixt. was heated in an elec. furnace (250 V; 150
 A) and cooled rapidly to give a **fertilizer**. From this
fertilizer, the trace elements showed high solv.

IT **497-19-8**, Soda ash, biological studies **1313-27-5**,
Molybdenum trioxide, biological studies
 (in trace element **fertilizer** manuf.)

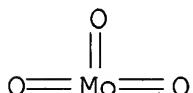
RN 497-19-8 HCA

CN Carbonic acid sodium salt (1:2) (CA INDEX NAME)



●2 Na

RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC ICM C05D009-00
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST trace element **fertilizer**
 IT Slags
 (in trace element **fertilizer** manuf.)

IT Feldspar-group minerals
 Limestone, biological studies
 Serpentinite
 (in trace element **fertilizer** manuf.)

IT **Fertilizers**
 (trace element, manuf. of, by heating serpentinite-contg. mixts.)

IT 497-19-8, Soda ash, biological studies 1303-96-4, Borax
1313-27-5, Molybdenum trioxide,
 biological studies 1317-38-0, Copper oxide (CuO), biological
 studies 1317-60-8, Hematite, biological studies 12196-21-3,
 Calamine 13717-00-5, Magnesite
 (in trace element **fertilizer** manuf.)

IT 7439-89-6, Iron, biological studies 7439-96-5, Manganese,
 biological studies 7439-98-7, Molybdenum, biological studies
 7440-42-8, Boron, biological studies 7440-50-8, Copper, biological
 studies 7440-66-6, Zinc, biological studies
 (trace element **fertilizer** contg.)

L35 ANSWER 16 OF 41 HCA COPYRIGHT 2009 ACS on STN
 112:138173 Original Reference No. 112:23353a,23356a Influence of
 secondary nutrient elements (magnesium, sulfur) and some trace
 elements (boron, cobalt, copper, iron, manganese, molybdenum, zinc)
 on ryegrass (*Lolium multiflorum*) yield and quality depending on
 their chemical form and the accompanying ions. Dorneanu, A.;
 Bogdanescu, Victoria; Dorneanu, Emilia; Ilie, Gabriela (Inst.
 Cercet. Pedol. Agrochim., Bucharest, Rom.). *Analele Institutului de
 Cercetari pentru Pedologie si Agrochimie, Academia de Stiinte
 Agricole si Silvice*, 48, 203-10 (Romanian) 1988. CODEN:
 AICAD3. ISSN: 0258-6959.

AB Ryegrass yields increased by $\leq 16\%$ following
fertilization with nutrient-contg. compds. found in
 industrial or mining wastes (32 compds. evaluated). The greatest
 effects were obtained with sulfates, nitrates, and acid forms. Pos.
 effects on N assimilation were obsd. in many cases; the N content of
 the ryegrass increased from 2.87% of dry wt. controls to
 $\leq 3.85\%$.

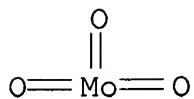
IT 1309-48-4, Magnesium oxide, biological
 studies 1313-27-5, Molybdenum oxide (
MoO₃), biological studies
 (**fertilizer** expt. with, with ryegrass, waste
 utilization in relation to)

RN 1309-48-4 HCA
 CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg=O

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



CC 19-5 (Fertilizers, Soils, and Plant Nutrition)
 ST ryegrass magnesium sulfur micronutrient **fertilizer**; waste
 mineral trace element ryegrass; trace element waste
 fertilizer ryegrass
 IT Lolium multiflorum
 (**fertilizer** expt. with, with magnesium and sulfur and
 trace element compds. found in industrial and mining wastes)
 IT Trace elements, biological studies
 (**fertilizer** expt., with ryegrass)
 IT Mines and Mining
 (wastes from, magnesium and sulfur and trace element compds.,
 fertilizer expt. with, with ryegrass)
 IT **Fertilizer** experiment
 (with magnesium and sulfur and trace element compds. of
 industrial or mining wastes, with ryegrass)
 IT Wastes
 (industrial, magnesium and sulfur and trace element compds. from,
 fertilizer expt. with, with ryegrass)
 IT 7439-95-4
 (**fertilizer** experiment, with magnesium and sulfur and
 trace element compds. of industrial or mining wastes, with
 ryegrass)
 IT 557-34-6, Zinc acetate 598-62-9, Manganese carbonate
1309-48-4, Magnesium oxide, biological
 studies **1313-27-5, Molybdenum oxide** (**MoO₃**), biological studies 1314-13-2, Zinc oxide,
 biological studies 1317-38-0, Copper oxide (CuO), biological
 studies 3251-23-8, Cupric nitrate 7000-29-5, Calcium
magnesium carbonate 7447-39-4, Copper chloride
 (CuCl₂), biological studies 7487-88-9, Magnesium sulfate,
 biological studies 7631-95-0, Sodium molybdate 7646-79-9, Cobalt
 chloride, biological studies 7646-93-7, Monopotassium sulfate
 7705-08-0, Ferric chloride, biological studies 7720-78-7, Ferrous
 sulfate 7733-02-0, Zinc sulfate 7772-98-7, Sodium thiosulfate
 7773-01-5, Manganese chloride (MnCl₂) 7778-80-5, Dipotassium
 sulfate, biological studies 7779-88-6, Zinc nitrate 7782-91-4,
 Molybdic acid (H₂MoO₄) 7785-87-7, Manganese sulfate 7786-30-3,
 Magnesium chloride, biological studies 10045-89-3, Ammonium
 ferrous sulfate 10141-05-6, Cobalt nitrate 10377-60-3, Magnesium
 nitrate 12027-67-7, Ammonium paramolybdate 18939-61-2
 (**fertilizer** expt. with, with ryegrass, waste)

utilization in relation to)

IT 7439-89-6, Iron, biological studies 7439-96-5, Manganese, biological studies 7439-98-7, Molybdenum, biological studies 7440-42-8, Boron, biological studies 7440-48-4, Cobalt, biological studies 7440-50-8, Copper, biological studies 7440-66-6, Zinc, biological studies 7704-34-9, Sulfur, biological studies
(fertilizer expt., with ryegrass)

L35 ANSWER 17 OF 41 HCA COPYRIGHT 2009 ACS on STN

112:54314 Original Reference No. 112:9329a,9332a Production of polyphosphate complexes of trace elements. Glabisz, Urszula; Grzmil, Barbara (Inst. Technol. Chem., Politech. Szczecinskiej, Szczecin, Pol.). Zeszyty Problemowe Postepow Nauk Rolniczych, 325, 337-42 (Polish) 1989. CODEN: ZPPRAW. ISSN: 0084-5477.

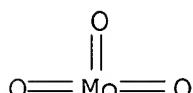
AB Decomprn. of KCl with **H₃PO₄** at 350-500° in the presence of 0.5 mol CuSO₄ or ZnSO₄, or 0.25 mol **MoO₃**/mol **H₃PO₄** prevented crystn. of the low-soly. Kurrol salt (KPO₃)_n by nitrification which provided for 100% P soly. in water. Decomprn. at 350° in the presence of 0.1 mol MnSO₄/mol **H₃PO₄** gave 100% soly. in 2% citric acid. CoSO₄ at 0.2 mol/mol **H₃PO₄** at 350° gave better water and citric acid soly. than did lower concns. Small amts. of o-tripolyphosphates formed in the presence of all the trace metals. Cu addnl. induced also some pyrophosphates, whereas other metals also induced some linear polymd. phosphates (n <8).

IT **1313-27-5, Molybdenum oxide, reactions**

(potassium chloride decomprn. by **phosphoric acid** modification by, vitrification and solubilization in)

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)

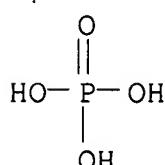


IT **7664-38-2, Phosphoric acid, reactions**

(potassium chloride decomprn. by, vitrification and solubilization by **phosphoric acid** in)

RN 7664-38-2 HCA

CN Phosphoric acid (CA INDEX NAME)



- CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
ST potassium polyphosphate trace metal complex **fertilizer**
IT Trace elements, uses and miscellaneous
(metals, potassium chloride decompn. by **phosphoric acid** modification by, vitrification and solubilization in)
IT Trace elements, compounds
(metals, potassium polyphosphate complexes, **fertilizers**, manuf. and vitreous structure and solv. of)
IT **Fertilizers**
(potassium polyphosphate-trace element complexes, manuf. of, vitrification and solubilization in)
IT Polyphosphoric acids
(potassium salts, formation of, in potassium chloride decompn. by **phosphoric acid** in presence of trace metals)
IT 7447-40-7, Potassium chloride (KCl), reactions
(decompn. of, by **phosphoric acid**, vitrification and solubilization by trace elements in)
IT 7439-96-5DP, Manganese, complexes with potassium polyphosphates
7439-98-7DP, Molybdenum, complexes with potassium polyphosphates
7440-48-4DP, Cobalt, complexes with potassium polyphosphates
7440-50-8DP, Copper, complexes with potassium polyphosphates
7440-66-6DP, Zinc, complexes with potassium polyphosphates
(**fertilizer**, manuf. and vitreous structure and solv. of)
IT 10124-52-4D, trace element complexes
(formation of, in potassium chloride decompn. by **phosphoric acid**)
IT 29444-62-0D, trace element complexes
(formation of, in potassium chloride decompn. by **phosphoric acid** in presence of trace metals)
IT 7790-53-6
(formation of, in potassium chloride decompn. by **phosphoric acid**, trace element effect on)
IT 7733-02-0, Zinc sulfate 7758-98-7, Copper sulfate, reactions
7785-87-7, Manganese sulfate 10124-43-3
(potassium chloride decompn. by **phosphoric acid** modification by, vitrification and solubilization in)
IT **1313-27-5, Molybdenum oxide**, reactions
(potassium chloride decompn. by **phosphoric acid** modification by, vitrification and solubilization in)
IT **7664-38-2, Phosphoric acid**, reactions
(potassium chloride decompn. by, vitrification and solubilization by **phosphoric acid** in)

nitrosulfate **fertilizer** containing trace elements.

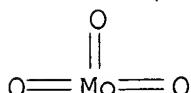
Rychnova, Alena; Rychna, Stanislav (Czech.). Czech. CS 234714 B1
19870301, 6 pp. (Czech). CODEN: CZXXA9. APPLICATION: CS
 1983-9868 19831223.

AB The **fertilizer** is prep'd. by charging acid liquors contg. Mo, H₂SO₄, and HNO₃ at -30 to +80° to a decompn. slurry for **fertilizer** manuf., after optional neutralization with NH₃(g), NH₄OH, Na₂CO₃, NaOH, or KOH to pH 3-8.5. A 1000 kg mixt. of H₂SO₄ 30, HNO₃ 13, and molybdic acid 4.05% (Mo content 2.4%) was added to 330 kg water in a stainless steel reactor at 60°. A 1000 kg acid portion was neutralized by using 147.7 kg NH₃, to pH 4.5. The neutralized soln. contg. (NH₄)₂SO₄ 35.2, NH₄NO₃ 14.4, and NH₄ molybdate (2.79% Mo) 4.3% was fed into a cascade of 5 neutralization U-shaped reactors for prodn. of the nitrosulfate **fertilizer**. The Mo content in the **fertilizer** was 0.03%.

IT **1313-27-5**, biological studies
 (in **fertilizer** manuf.)

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC ICM C05F007-00

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)

ST acid liquor nitrosulfate **fertilizer** manuf; etching wastewater molybdenum **fertilizer** manuf

IT Wastewater
 (etching, molybdenum-contg., in **fertilizer** manuf.)

IT **Fertilizers**
 (molybdenum-nitrosulfate, manuf. of, from metal-etching wastewaters)

IT **1313-27-5**, biological studies 7733-02-0, Zinc sulfate (ZnSO₄) 10043-35-3, Ortho boric acid, biological studies (in **fertilizer** manuf.)

IT 7439-98-7, Molybdenum, biological studies 11098-84-3, Ammonium molybdate
 (in **fertilizer** manuf. from metal-etching wastewater)

L35 ANSWER 19 OF 41 HCA COPYRIGHT 2009 ACS on STN

102:112412 Original Reference No. 102:17647a,17650a Concentrated glass-like potassium **phosphate fertilizer**.

Saringulyan, R. S.; Zakoyan, R. O.; Pogosyan, M. A.; Astvatsatryan, B. N. ("Armgiprozem" Armenian State Design Institute of Land Management, USSR). U.S.S.R. SU 1119999 A1 **19841023** From:

Otkrytiya, Izobret. 1984, (39), 77-8. (Russian). CODEN: URXXAF.
 APPLICATION: SU 1982-3554076 19821213.

AB The addn. of Al₂O₃, Co₂O₃, V₂O₅, and SO₃ to a K **phosphate fertilizer** material contg. K₂O, P₂O₅, ZnO, **CaO**, **MgO**, CuO, B₂O₃, **Na₂O**, MnO₂, **MoO₃**, and Fe₂O₃ improved the range of the **fertilizer** solv. rate in the soil, decreased its hygroscopicity, and improved the agrochem. properties of the product. The glass-like **fertilizer** contained K₂O 20-45, P₂O₅ 45-70, ZnO 0.1-0.5, **CaO** 0.5-5, **MgO** 0.5-5, CuO 0.05-0.2, B₂O₃ 0.2-3, **Na₂O** 0.1-2, MnO₂ 0.1-0.5, **MoO₃** 0.05-0.1, Fe₂O₃ 0.1-5, Co₂O₃ 0.01-0.1, V₂O₅ 0.001-0.05, and SO₃ 0.1-0.5% (by wt.).

IT 1305-78-8, biological studies 1309-48-4,
 biological studies 1313-27-5, biological studies
 1313-59-3, biological studies
 (potassium **phosphate fertilizer** contg.)

RN 1305-78-8 HCA

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

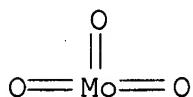
RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg=O

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



RN 1313-59-3 HCA

CN Sodium oxide (Na₂O) (CA INDEX NAME)

Na—O—Na

IC ICM C05B013-06

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 Section cross-reference(s): 49

ST potassium **phosphate** glasslike **fertilizer** compn

IT Trace elements

(oxides, potassium **phosphate fertilizer**

contg.)

IT Oxides, biological studies
 (trace element, potassium **phosphate fertilizer**
 contg.)

IT **Fertilizers**
 (potassium **phosphate**, glasslike concd., improvement of
 properties of, by trace element oxides)

IT 1303-86-2, biological studies **1305-78-8**, biological
 studies 1308-04-9 1309-37-1, biological studies
1309-48-4, biological studies 1313-13-9, biological
 studies **1313-27-5**, biological studies **1313-59-3**,
 biological studies 1314-13-2, biological studies 1314-62-1,
 biological studies 1317-38-0, biological studies 1344-28-1,
 biological studies 7446-11-9, biological studies
 (potassium **phosphate fertilizer** contg.)

L35 ANSWER 20 OF 41 HCA COPYRIGHT 2009 ACS on STN
 101:53998 Original Reference No. 101:8391a,8394a Granulated complex
fertilizer based on potassium **phosphate** glass.
 Kaplan, A. Yu.; Kurnyakov, I. F.; Posokhov, D. I.; Abramkin, A. D.;
 Sokol, A. S.; Kolyada, A. V.; Pasechnik, S. I. (USSR). U.S.S.R. SU
 1087498 A1 **19840423** From: Otkrytiya, Izobret., Prom.
 Obraztsy, Tovarnye Znaki 1984, (15), 83. (Russian). CODEN: URXXAF.

APPLICATION: SU 1982-3411873 19820324.

AB Action of K **phosphate** glass-based **fertilizer** is
 prolonged and complete solv. in H₂O is maintained by adding
Na₂O 2.0-0.5, Fe₂O₃ 0.3-1.0, Mn₂O₃ 0.1-1.0, B₂O₃ 0.05-0.20,
 and MoO 0.025-0.100 wt.%. The **fertilizer** supplies P₂O₅
 20.0-40.0, CaO 20.0-1.8, and trace elements consisting of
MgO 0.5-1.0, ZnO 0.09-0.30, and CuO 0.03-0.10 wt.%, the
 balance being K₂O.

IT **1313-59-3**, biological studies **12058-07-0**
 (**fertilizer** action prolonged by)

RN 1313-59-3 HCA

CN Sodium oxide (Na₂O) (CA INDEX NAME)

Na—O—Na

RN 12058-07-0 HCA

CN Molybdenum oxide (MoO) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Mo=O

IC C05B013-02

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)

Section cross-reference(s): 49

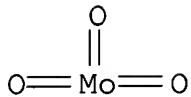
ST complex **fertilizer** potassium **phosphate** glass
 IT Glass, oxide
 Glass, oxide
 (potassium **phosphate**, **fertilizer** based on)
 IT **Fertilizers**
 (complex, granulated, based on potassium **phosphate**
 glass)
 IT 1303-86-2, biological studies 1309-37-1, biological studies
1313-59-3, biological studies 1317-34-6 **12058-07-0**
 (**fertilizer** action prolonged by)
 IT 7440-50-8, biological studies 7440-66-6, biological studies
 (**fertilizer** contg., based on potassium
phosphate glass)

L35 ANSWER 21 OF 41 HCA COPYRIGHT 2009 ACS on STN
 98:33409 Original Reference No. 98:5233a,5236a Mineral enrichment
 composition. Buddemeyer, Bruce D.; Neville, William A.; Rozzo,
 Nancy A.; Bourne, Richard G. (R.G.B. Laboratories, Inc., USA). U.S.
 US 4351735 A **19820928**, 24 pp. Cont.-in-part of U.S.
 4,214,996. (English). CODEN: USXXAM. APPLICATION: US 1980-166460
 19800707. PRIORITY: US 1978-970935 19781219.

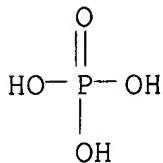
AB A dispersible product M₁A₁PO₄M₂X₂A₂ (I), where M₁ and M₂ are
 polyvalent metals, A₁ and A₂ are H, NH₄, or alkali metal, and X is
 an org. acid with ≥ 3 COO- groups, which may be a repeating
 unit in polymeric or quasipolymeric compns., was prep'd. by mixing a
 cation source, such as Ca, an alkali metal, or NH₄ phosphate source
 and an org. acid having ≥ 3 COO- groups; preferably citric
 acid, in H₂O and heating preferably at 150-400° F for 10-60
 min. I is suitable for nutrient fortification of food or feed or
 for use as a **fertilizer**. Dispersibility may be enhanced
 by adjuncts such as OH- sources, amino acids, whey, or caseinates.
 Thus, 1.9 g Mg(OH)₂ was added to 3.7 g Ca(OH)₂ in 773.2 g H₂O contg.
 200 g corn syrup, followed by addn. of 11.2 g K₂PO₄ and 10.0 g
 citric acid in the temp. range 76-84° for 5-10 min. The
 initial blend was mixed for 35 min with heating to a final temp. of
 180° F and had a pH of 6.45. A semitransparent hazy white
 compn. was obtained. Further heating to 250° F for 15 min
 gave a yellow, more transparent, very slightly hazy compn., which
 after filtration through activated charcoal gave a compd. identical
 to the product obtained after heating at 180° F.

IT **1313-27-5DP**, reaction products with alkali metal phosphates
 and polycarboxylic acids **7664-38-2DP**, alkali metal salts,
 reaction products with polycarboxylic acids and polyvalent cations
 (prepn. of, for feed and food and **fertilizer** mineral
 supplement)

RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



RN 7664-38-2 HCA
 CN Phosphoric acid (CA INDEX NAME)



(prepn. of, for feed and food and **fertilizer** mineral supplements

IC A23L001-30

INCL 252001000

CC 17-6 (Food and Feed Chemistry)
 Section cross-reference(s): 19

ST mineral enrichment compn phosphate polymer; trace element supplement food feed; **fertilizer** trace element supplement

IT **Fertilizers**

(mineral supplements for, polymeric)

IT Whey

(mixts. with mineral-contg. polymeric compds., for feed and food and **fertilizer** mineral supplements)

IT Mineral elements

Trace elements

(polymeric supplements contg., for feed and food and **fertilizer**)

IT Caseins, compounds

(sodium complexes, mixts. with mineral-contg. polymeric compds., for feed and food and **fertilizer** mineral supplements)

IT Syrups

(hydrolyzed starch, mixts. with mineral contg. polymeric compds., for feed and food and **fertilizer** mineral supplements)

IT 57-13-6, biological studies 1317-36-8, biological studies
 1327-53-3 1344-13-4 7439-89-6, biological studies 7439-93-2,
 biological studies 7440-09-7, biological studies 7440-23-5,
 biological studies 7440-36-0, biological studies 7440-41-7,
 biological studies 7761-88-8, biological studies 7803-55-6
 10042-76-9 10043-35-3, biological studies 10361-43-0
 12137-20-1 12653-71-3 12672-51-4 13410-01-0 13548-38-4
 13870-28-5 14798-03-9, biological studies 17194-00-2
 21041-95-2 21645-51-2, biological studies 37382-23-3
 (feed and food and **fertilizer** nutrient supplements)

contg.)

- IT 50-69-1 50-99-7, biological studies 56-81-5, biological studies
57-48-7, biological studies 57-50-1, biological studies 58-86-6,
biological studies 59-23-4, biological studies 63-42-3 69-79-4
147-81-9 512-69-6 9050-36-6
(mineral-contg. polymeric compds. blend with, for feed and food
and **fertilizer** mineral supplements)
- IT 77-92-9DP, reaction products with alkali metal phosphates and
polyvalent cations 527-09-3DP, reaction products with alkali metal
phosphates and polycarboxylic acids 563-71-3DP, reaction products
with alkali metal phosphates and polycarboxylic acids 1305-62-0DP,
reaction products with alkali metal phosphates and polycarboxylic
acids 1309-42-8DP, reaction products with alkali metal phosphates
and polycarboxylic acids 1310-65-2DP, reaction products with
alkali metal phosphates and polycarboxylic acids **1313-27-5DP**
, reaction products with alkali metal phosphates and polycarboxylic
acids 1314-13-2DP, reaction products with alkali metal phosphates
and polycarboxylic acids 1344-69-0DP, reaction products with
alkali metal phosphates and polycarboxylic acids 3251-23-8DP,
reaction products with alkali metal phosphates and polycarboxylic
acids 3486-35-9DP, reaction products with alkali metal phosphates
and polycarboxylic acids 4468-02-4DP, reaction products with
alkali metal phosphates and polycarboxylic acids 7050-19-3DP,
reaction products with alkali metal phosphates and polycarboxylic
acids 7447-39-4DP, reaction products with alkali metal phosphates
and polycarboxylic acids 7646-85-7DP, reaction products with
alkali metal phosphates and polycarboxylic acids **7664-38-2DP**
, alkali metal salts, reaction products with polycarboxylic acids
and polyvalent cations 7705-08-0DP, reaction products with alkali
metal phosphates and polycarboxylic acids 7733-02-0DP, reaction
products with alkali metal phosphates and polycarboxylic acids
7785-87-7DP, reaction products with alkali metal phosphates and
polycarboxylic acids 10028-22-5DP, reaction products with alkali
metal phosphates and polycarboxylic acids 10043-35-3DP, reaction
products with alkali metal phosphates and polycarboxylic acids
10377-66-9DP, reaction products with alkali metal phosphates and
polycarboxylic acids 11113-74-9DP, reaction products with alkali
metal phosphates and polycarboxylic acids 20344-49-4DP, reaction
products with alkali metal phosphates and polycarboxylic acids
21908-53-2DP, reaction products with alkali metal phosphates and
polycarboxylic acids
(prepn. of, for feed and food and **fertilizer** mineral
supplement)
- IT 50-21-5DP, reaction products with alkali metal phosphates and
polyvalent cations 60-00-4DP, reaction products with alkali metal
phosphates and polyvalent cations 110-17-8DP, reaction products
with alkali metal phosphates and polyvalent cations 124-04-9DP,
reaction products with alkali metal phosphates and polyvalent

cations 139-13-9DP, reaction products with alkali metal phosphates and polyvalent cations 140-01-2DP, reaction products with alkali metal phosphates and polyvalent cations 144-62-7DP, reaction products with alkali metal phosphates and polyvalent cations 526-95-4DP, reaction products with alkali metal phosphates and polyvalent cations 1310-58-3DP, reaction products with alkali metal phosphates and polycarboxylic acids 6915-15-7DP, reaction products with alkali metal phosphates and polyvalent cations 7447-40-7DP, reaction products with alkali metal phosphates and polycarboxylic acids 7647-01-0DP, reaction products with alkali metal phosphates and polyvalent cations **7664-38-2DP**, reaction products with alkali metal phosphates and polyvalent cations 7778-53-2DP, alkali metal salts, reaction products with polycarboxylic acids and polyvalent cations 7778-77-0DP, alkali metal salts, reaction products with polycarboxylic acids and polyvalent cations 7782-91-4DP, reaction products with alkali metal phosphates and polyvalent cations 10294-56-1DP, alkali metal salts, reaction products with polycarboxylic acids and polyvalent cations 10343-62-1DP, alkali metal salts, reaction products with polycarboxylic acids and polyvalent cations

(prepn. of, for feed and food and **fertilizer** mineral supplements)

L35 ANSWER 22 OF 41 HCA COPYRIGHT 2009 ACS on STN

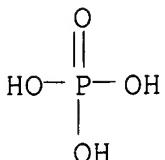
96:103101 Original Reference No. 96:16925a,16928a Material composition and method for synthesizing products containing metal having a high degree of dispersibility in aqueous medium for nonnutritive and nonpharmacological uses. Buddemeyer, Bruce Donald; Rozzo, Nancy Ann; Neville, William Amos; Bourne, Richard Gordon (R.G.B. Laboratories, Inc., USA). Braz. Pedido PI BR 8001201 A **19810901**, 26 pp. (Portuguese). CODEN: BPXXDX.

APPLICATION: BR 1980-1201 19800229.

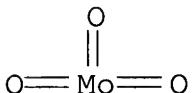
AB Mineral-contg. polymeric compns. for nonpharmacol. and nonnutritional uses have the generalized formula in which M₁ and M₂ can be Ca, Mg, Fe, Ni, Cu, B, Zn, Mn, or Mo; A₁ and A₂ are groups contg. H and 2 alk. metals and X is an org. acid fraction contg. ≤3 carboxyl group (preferably citrate). The synthesis process includes mixing a source of cation, a source of K₂HPO₄, and an org. acid with water, followed by heating and agitation. The dispersibility of the compn. is increased by using auxiliary compds. contg. OH groups, such as sugars. The compns. obtained can be used for **fertilization** of soil, esp. for application during irrigation, or for other purposes for which dispersibility is desirable. Thus, a mineral enrichment prepn. for soils was prep'd. by mixing corn syrup (200.0 g) with Ca(OH)₂ (3.7 g), Mg(OH)₂ (1.9 g), K₂HPO₄ (11.2 g), and citric acid (10 g) with 773.2 g of water at 24-28°. The initial pH was 6.75, and after the mixt. was agitated and heated to 180° for 35 min, the pH was 6.45. The

prepns. obtained was heated again at 121° and then refrigerated overnight (at 7°) and filtered through activated C.

- IT 7664-38-2D, reaction products with mineral elements and polycarboxylic acids
 (fertilizers contg., metal-contg. polymeric)
 RN 7664-38-2 HCA
 CN Phosphoric acid (CA INDEX NAME)



- IT 1313-27-5D, reaction products with phosphoric and polycarboxylic acids
 (fertilizers contg., polymeric)
 RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



- IC C08G079-14
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 Section cross-reference(s): 35
 ST metal polymer citrate fertilizer
 IT Fertilizers
 (metal-contg. polymeric, manuf. of)
 IT Carboxylic acids, compounds
 (reaction products with mineral elements and phosphoric acids, polymeric compns. contg., as fertilizers
)
 IT Syrups
 (hydrolyzed starch, fertilizers contg., metal-contg. polymeric)
 IT Polymers, biological studies
 (metal-contg., as fertilizers)
 IT 50-99-7D, mixts. with polymeric mineral compns. 56-81-5D, mixts.
 with polymeric mineral compns. 57-50-1D, mixts. with polymeric mineral compns. 60-00-4D, mixts. with polymeric mineral compns. 79-14-1D, mixts. with polymeric mineral compns. 526-95-4D, mixts.
 with polymeric mineral compns.
 (as fertilizers)

- IT 87-73-0D, complexes with iron, reaction product with **phosphoric acid** and polycarboxylic acids
463-79-6D, complexes with iron, reaction product with **phosphoric acid** and polycarboxylic acids
(fertilizers contg.)
- IT 7558-79-4D, reaction products with mineral elements and polycarboxylic acids **7664-38-2D**, reaction products with mineral elements and polycarboxylic acids 7758-11-4D, reaction products with mineral elements and polycarboxylic acids 7778-53-2D, reaction products with mineral elements and polycarboxylic acids 7778-77-0D, reaction products with mineral elements and polycarboxylic acids 10343-62-1D, reaction products with mineral elements and polycarboxylic acids
(fertilizers contg., metal-contg. polymeric)
- IT 527-09-3D, reaction products with phosphoric and polycarboxylic acids 1305-62-0D, reaction products with phosphoric and polycarboxylic acids 1309-42-8D, reaction products with phosphoric and polycarboxylic acids 1310-58-3D, reaction products with phosphoric and polycarboxylic acids 1310-65-2D, reaction products with phosphoric and polycarboxylic acids **1313-27-5D**, reaction products with phosphoric and polycarboxylic acids 1314-13-2D, reaction products with phosphoric and polycarboxylic acids 1344-69-0D, reaction products with phosphoric and polycarboxylic acids 3251-23-8D, reaction products with phosphoric and polycarboxylic acids 3486-35-9D, reaction products with phosphoric and polycarboxylic acids 4468-02-4D, reaction products with phosphoric and polycarboxylic acids 7439-89-6D, complexes with carbon;ate and saccharate, reaction products with phosphoric and polycarboxylic acids 7447-39-4D, reaction products with phosphoric and polycarboxylic acids 7447-40-7D, reaction products with phosphoric and polycarboxylic acids 7646-85-7D, reaction products with phosphoric and polycarboxylic acids 7705-08-0D, reaction products with phosphoric and polycarboxylic acids 7733-02-0D, reaction products with phosphoric and polycarboxylic acids 7782-91-4D, reaction products with phosphoric and polycarboxylic acids 7785-87-7D, reaction products with phosphoric and polycarboxylic acids 10028-22-5D, reaction products with phosphoric and polycarboxylic acids 10043-35-3D, reaction products with phosphoric and polycarboxylic acids 10377-66-9D, reaction products with phosphoric and polycarboxylic acids 12054-48-7D, reaction products with phosphoric and polycarboxylic acids 18624-44-7D, reaction products with phosphoric and polycarboxylic acids 21908-53-2D, reaction products with phosphoric and polycarboxylic acids
(fertilizers contg., polymeric)
- IT 77-92-9D, reaction products with mineral elements and **phosphoric acids** 139-13-9D, reaction products with mineral elements and **phosphoric acids**

7050-19-3D, reaction products with **phosphoric acid**
 (polymeric mineral compns. contg., as **fertilizers**)

L35 ANSWER 23 OF 41 HCA COPYRIGHT 2009 ACS on STN

96:84637 Original Reference No. 96:13889a,13892a Controlled release of trace nutrients. Cardarelli, Nathan F. (Environmental Chemicals, Inc., USA). U.S. US 4299613 A **19811110**, 14 pp. Cont.-in-part of U.S. Ser. No. 14,118. (English). CODEN: USXXAM. APPLICATION: US 1979-51102 19790622. PRIORITY: US 1978-916570 19780619; US 1979-5174 19790122; US 1979-14118 19790222.

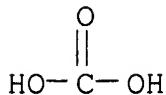
AB Slow release of trace nutrients to soil is obtained by applying a mixt. comprising .apprx.10-.apprx.160 parts by wt. of nutrient and .apprx.0.1-.apprx.70 parts by wt. of porosigen in a polymer matrix (100 parts by wt.). The polymer matrix is made of an ethylene-vinyl acetate copolymer (I) [24937-78-8], and ethylene-propylene copolymer [9010-79-1], a low-d. polyethylene (II) [9002-88-4], and combinations thereof. Thus, formulations contg. I (melt index 9.0) 50, II (melt index 8.5) 40, Zn stearate (as dispersant) 2, and ZnSO₄.H₂O 80 parts with or without NaHCO₃ (as porosigen) 5 parts were immersed in mineral-free distd. water. Steady-state emission rates were 0.04 and 0.37% agent loss/day without and with NaHCO₃, resp.

IT **497-19-8**, biological studies

(as porosigen in slow-release trace element **fertilizers**)

RN 497-19-8 HCA

CN Carbonic acid sodium salt (1:2) (CA INDEX NAME)



●2 Na

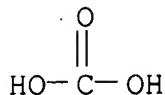
IT **546-93-0 1309-48-4**, biological studies

1313-27-5, biological studies

(**fertilizers** contg., controlled-release)

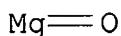
RN 546-93-0 HCA

CN Carbonic acid, magnesium salt (1:1) (CA INDEX NAME)

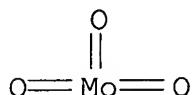


● Mg

RN 1309-48-4 HCA
 CN Magnesium oxide (MgO) (CA INDEX NAME)



RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC A01N025-00
 INCL 71-64F
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST trace element controlled release soil; polymer matrix porosigen
 micronutrient **fertilizer**
 IT Porosity
 (agents for enhancement of, controlled-release
 fertilizers contg.)
 IT Alkali metal halides, uses and miscellaneous
 Alkaline earth halides
 (as porosigens in slow-release trace element **fertilizers**
)
 IT Trace elements
 (**fertilizers** with controlled release of)
 IT **Fertilizers**
 (trace element, controlled-release, polymer matrix and porosigens
 in)
 IT 107-21-1, biological studies 144-55-8, biological studies
497-19-8, biological studies 1066-33-7 1344-09-8
 7440-02-0D, halogenated 7440-22-4D, halogenated 7440-31-5D,
 halogenated 7631-86-9, biological studies 7783-20-2, biological
 studies 10192-29-7 10361-29-2 12124-97-9 12125-01-8
 12125-02-9, biological studies 60676-62-2
 (as porosigen in slow-release trace element **fertilizers**

)

IT 142-72-3 **546-93-0** 1309-37-1, biological studies
1309-48-4, biological studies 1313-13-9, biological studies
1313-27-5, biological studies 1314-13-2,
biological studies 1317-39-1, biological studies 1332-40-7
3486-35-9 7446-08-4 7487-88-9, biological studies 7488-56-4
7492-68-4 7631-95-0 7646-85-7, biological studies 7705-08-0,
biological studies 7720-78-7 7733-02-0 7757-88-2 7758-98-7,
biological studies 7773-01-5 7779-88-6 7779-90-0 7785-87-7
7791-23-3 10043-35-3 10043-83-1 10103-48-7 10124-43-3
10141-05-6 10361-95-2 10377-60-3 10377-66-9 10402-29-6
13410-01-0 13446-49-6 13768-86-0 80546-49-2 80746-60-7
(**fertilizers** contg., controlled-release)
IT 7439-89-6, biological studies 7439-95-4, biological studies
7439-96-5, biological studies 7439-98-7, biological studies
7440-42-8, biological studies 7440-48-4, biological studies
7440-50-8, biological studies 7440-66-6, biological studies
7782-49-2, biological studies
(**fertilizers**, controlled-release)

L35 ANSWER 24 OF 41 HCA COPYRIGHT 2009 ACS on STN
94:155667 Original Reference No. 94:25455a,25458a Controlled release of
trace nutrients. Cardarelli, Nathan F. (Environmental Chemicals,
Inc., USA). PCT Int. Appl. WO 8100010 **19810108**, 88 pp.
(English). CODEN: PIXXD2. APPLICATION: WO 1980-US668 19800602.

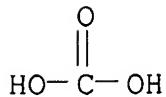
AB Controlled-release trace element compns. comprise
.apprx.10-.apprx.160 parts by wt. of plant nutrient per 100 parts of
a polymer matrix made of ethylene-vinyl acetate copolymer (I)
[24937-78-8] (.apprx.60-.apprx.95% by wt. ethylene, mol. wt.
.apprx.40,000-.apprx.400,000), ethylene-propylene copolymer
[9010-79-1] (.apprx.30-.apprx.75% by wt. ethylene, mol. wt.
.apprx.50,000-.apprx.250,000), and(or) polyethylene (II)
[9002-88-4] with a d. of .apprx.0.90-0.94 g/cm³, mol. wt.
.apprx.100,000-.apprx.400,000; porosity-enhancing agents with a
soly. of <100 g/100 g water are included in some formulations at
.apprx.0.1-.apprx.70 parts by wt./100 parts polymer matrix. Thus, I
50, II 40, Zn stearate 2, ZnSO₄.H₂O 80, and porosity enhancer NH₄
sulfate 10 parts were mixed to give a formulation with an emission
rate of 0.38% agent/day, whereas the same formulation with NH₄
sulfate omitted had an emission rate of 0.04%/day. Soybean grown on
soil amended with 1 g/pot (1300 g soil) of NH₄ sulfate-contg.
formulation had an av. postgermination stem growth of 2.75 cm/day
vs. stem growth of 1.09 cm/day in the unfertilized control.

IT **471-34-1**, biological studies **497-19-8**, biological studies

(as porosity enhancer for controlled-release **fertilizers**)

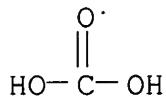
RN 471-34-1 HCA

CN Carbonic acid calcium salt (1:1) (CA INDEX NAME)



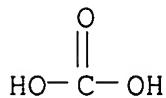
● Ca

RN 497-19-8 HCA
CN Carbonic acid sodium salt (1:2) (CA INDEX NAME)



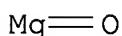
●2 Na

IT 546-93-0 1309-48-4, biological studies
1313-27-5, biological studies
(fertilizer contg., controlled-release)
RN 546-93-0 HCA
CN Carbonic acid, magnesium salt (1:1) (CA INDEX NAME)

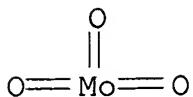


● Mg

RN 1309-48-4 HCA
CN Magnesium oxide (MgO) (CA INDEX NAME)



RN 1313-27-5 HCA
CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC C05G003-00; B29C025-00; C08J009-26
 CC 19-5 (Fertilizers, Soils, and Plant Nutrition)
 ST trace element controlled release **fertilizer**; polymer
 matrix trace element **fertilizer**; porosity enhancer polymer
 micronutrient **fertilizer**
 IT Alkali metal halides, uses and miscellaneous
 Alkaline earth halides
 Carbonates, uses and miscellaneous
 Nitrates, uses and miscellaneous
 Nitrides
 Nitrites
 Oxides, uses and miscellaneous
Phosphates, uses and miscellaneous
 Phosphides
 Phosphites
 Sulfates, uses and miscellaneous
 Sulfides, uses and miscellaneous
 Sulfites
 (as porosity enhancers for controlled-release **fertilizers**)
)
 IT Trace elements
 (**fertilizers**, controlled-release)
 IT Carbonates, uses and miscellaneous
 (hydrogen, as porosity enhancers for controlled-release
 fertilizers)
 IT **Fertilizers**
 (trace element, controlled-release, polymer matrix and porosity
 enhancers in)
 IT 107-21-1, biological studies 144-55-8, biological studies
 471-34-1, biological studies 497-19-8, biological
 studies 1066-33-7 1344-09-8 7631-86-9, biological studies
 7783-20-2, biological studies 10192-29-7 10361-29-2 12124-97-9
 12125-01-8 12125-02-9, biological studies 60676-62-2
 (as porosity enhancer for controlled-release **fertilizers**)
)
 IT 7440-02-0D, salts 7440-22-4D, salts 7440-31-5D, salts
 (as porosity enhancers for controlled-release **fertilizers**)
)
 IT 142-72-3 **546-93-0** 1309-37-1, biological studies
1309-48-4, biological studies 1313-13-9, biological
 studies **1313-27-5**, biological studies 1314-13-2,
 biological studies 1317-39-1, biological studies 1330-43-4

1332-40-7 3486-35-9 7446-08-4 7487-88-9, biological studies
 7488-56-4 7492-68-4 7631-95-0 7646-79-9, biological studies
 7646-85-7, biological studies 7705-08-0, biological studies
 7720-78-7 7733-02-0 7757-88-2 7758-98-7, biological studies
 7773-01-5 7779-88-6 7779-90-0 7785-87-7 7791-23-3
 10043-35-3, biological studies 10043-83-1 10103-48-7
 10124-43-3 10141-05-6 10361-95-2 10377-60-3 10377-66-9
 13410-01-0 13446-49-6 13768-86-0
 (fertilizer contg., controlled-release)
 IT 9002-88-4 9010-79-1 24937-78-8
 (fertilizer with matrix of, trace element
 controlled-release)
 IT 7439-89-6, biological studies 7439-96-5, biological studies
 7439-98-7, biological studies 7440-42-8, biological studies
 7440-48-4, biological studies 7440-50-8, biological studies
 7440-66-6, biological studies 7782-49-2, biological studies
 (fertilizers, controlled-release)

L35 ANSWER 25 OF 41 HCA COPYRIGHT 2009 ACS on STN
 90:191205 Original Reference No. 90:30335a,30338a Glass-formation
 region of some three-component phosphate, boron-
 phosphate, and molybdenum-borate systems. Gabrovski, Kh.;
 Obretenov, Ts. (Higher Inst. Chem. Technol., Burgas, Bulg.).
 Godishnik na Visschiya Khimiko-Tekhnologichen Institut, Burgas,
 Volume Date 1977, 12, Pt. 1, 199-205 (Bulgarian) 1978.
 CODEN: GVKTAG. ISSN: 0367-5459.

AB The glass-formation regions in mixts. contg. P2O5, MgO,
 CoO, ZnO, CuO, B2O3, MoO3, Mn2O3, Fe2O3, and/or CuO, were
 presented. Glass was formed by casting the 800-1350° melts
 onto cast iron plates. The glasses could be used as metal-rich
 additives for fertilizers.

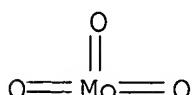
IT 1309-48-4, uses and miscellaneous 1313-27-5, uses
 and miscellaneous
 (glass, as fertilizer additive)

RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg—O

RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO3) (CA INDEX NAME)



CC 57-1 (Ceramics)
 Section cross-reference(s): 19
 ST **phosphate glass fertilizer**
 IT **Fertilizers**
 (**phosphate** glass additives for)
 IT Glass, oxide
 (**phosphate**, as **fertilizer** additive)
 IT 1307-96-6, uses and miscellaneous 1309-37-1, uses and
 miscellaneous **1309-48-4**, uses and miscellaneous
 1313-27-5, uses and miscellaneous 1314-13-2, uses and
 miscellaneous 1314-56-3, uses and miscellaneous 1317-34-6
 1317-38-0, uses and miscellaneous
 (glass, as **fertilizer** additive)

L35 ANSWER 26 OF 41 HCA COPYRIGHT 2009 ACS on STN
 86:188430 Original Reference No. 86:29557a,29560a

Superphosphate. Bergmann, Werner; Joachim, Rolf; Kothe,
 Klaus Uwe; Maiwald, Helmut; Meyer, Gisela; Stahmann, Dieter (Ger.
 Dem. Rep.). Ger. (East) DD 122064 **19760912**, 7 pp.

(German). CODEN: GEXXA8. APPLICATION: DD 1975-188854 19751015.

AB Use is made of oxygenic, hydrocarbon-free, exhausted, and finely
 pulverized Mo-contg. hydrogenation catalyst in an amt. of
 ≤10%, preferably 0.1-0.5%, as an additive for normally
 produced **superphosphate**. Thus, hydrogenation catalyst not
 capable of regeneration and obtained from the TTH or HTM processes
 was roasted in a kiln at a temp. of 550°. In addn. to the
 regulation of the temp., different amts. of atm. N and steam were
 employed. After .apprx.5 days roasting time the catalyst was
 converted to its oxygenic form and freed from contamination by
 hydrocarbons. After roasting, the catalyst had the following
 compn.: **MoO₃** 14.4, NiO 4.5, **CaO** 1.0, Fe₂O₃ 1.3,
MgO 0.4, P₂O₅ 0.6, As₂O₃ 1.1, and Al₂O₃ 76.7%. The roasted
 product was then ground to a fine powder in a hammer mill. To 98 kg
 of the usual **superphosphate** material was added 2 kg of the
 prep'd. hydrogenation catalyst with a **MoO₃** content of 14.4%
 and the 2 components mixed in a mixer. The resulting product
 contained 0.19% Mo.

IC C05B001-02

CC 19-5 (Fertilizers, Soils, and Plant Nutrition)

ST **superphosphate fertilizer** molybdenum;
 hydrogenation catalyst **fertilizer**

IT **Fertilizers**

 (**superphosphate**, molybdenum-contg., from hydrogenation
 catalysts)

IT 7439-98-7P, biological studies

 (**fertilizer** contg. **superphosphate** and, manuf.
 from hydrogenation catalysts)

L35 ANSWER 27 OF 41 HCA COPYRIGHT 2009 ACS on STN
 86:188426 Original Reference No. 86:29553a,29556a Magnesium-calcium-phosphate fertilizer. Bergmann, Werner; Diekers, Guenter; Joachim, Rolf; Maiwald, Helmut; Meyer, Gisela; Miltzlaff, Heinz; Pfeil, Gisela; Riesel, Werner; Voigtberger, Klaus (Ger. Dem. Rep.). Ger. (East) DD 121506 **19760805**, 3 pp. (German).
 CODEN: GEXXA8. APPLICATION: DD 1975-188853 19751015.

AB The discovery concerns a Mo-contg. Mg-Ca-phosphate fertilizer obtained in a melt decompn. process. A hydrogenation catalyst from the TTH process that was no longer reclaimable was roasted in an oven at 550°. Temp. regulation along with atm. N and steam were employed to vary its compn. After apprx. 7 days roasting, the catalyst was converted to its oxigenic form and freed from hydrocarbon contamination. After roasting, the catalyst had the following compn.: **MoO₃** 13.0, NiO 4.5, **CaO** 1.0, Fe₂O₃ 1.3, **MgO** 0.4, P₂O₅ 0.6, As₂O₃ 1.1, and Al₂O₃ 78.1 wt.%. The roasted contact pellets were then pulverized in a hammer mill. For the carrying out of the melt decompn. process, the following mixt. was prep'd.: Kola apatite conc. 100, kieserite 100, sand 10, and catalyst 4.5 parts by wt. The mixt. was then melted down in a crucible at in an oven at 1100°. After attainlng a clear melt it was fractured by pouring into water. The resulting porous granules were, after drying, pulverized. In this way a fertilizer was obtained with the compn.: P₂O₅ 21.5, citric acid-sol. P₂O₅ 20.2, **MgO** 11.3, and Mo 0.2 wt.%. The As that was introduced with the catalyst in the melt decompn. process was 91.1% split off.

IC C05B009-00

CC 19-5 (Fertilizers, Soils, and Plant Nutrition)

ST magnesium calcium phosphate fertilizer;

molybdenum fertilizer catalyst

IT Fertilizers

(magnesium phosphate, calcium, molybdenum-contg., from hydrogenation catalyst and minerals, by melt decompn. process)

L35 ANSWER 28 OF 41 HCA COPYRIGHT 2009 ACS on STN

57:51347 Original Reference No. 57:10270c-d Effects of various ingredients upon fused calcium magnesium phosphate fertilizer. Ando, Jumpei (Chuo Univ., Tokyo). Kogyo Kagaku Zasshi, 62, 677-81 (Unavailable) **1959**. CODEN: KGKZA7.
 ISSN: 0368-5462.

AB Effects of a small amt. of **Na₂O** and rare elements of fertilizer such as MnO, B₂O₃, ZnO, and **MoO₃** upon fusion point, flow of the melt, citric acid soly., and constitution of fused Ca Mg phosphate fertilizer were studied. By addn. of a small amt. of B₂O₃, the fusion point of the phosphate was lowered and sol. phosphate was obtained by fusion at lower temp. **Na₂O** promoted the

crystn. of the **phosphate** and thus was apt to depress the solv., esp. when fusion or quenching of the **phosphate** was not practiced sufficiently. By addn. of MnO to the **phosphate** in place of **MgO**, the fluidity of the melt was depressed. However, about 3% MnO could be contained in the **phosphate** which contained about 20% P2O5 and 1.6% F without decreasing citric acid solv. of the **phosphate**. ZnO was evapd. **MoO3** depressed the citric acid solv. of the **phosphate**.

CC 61 (Plant Nutrition, Soils, and Fertilizers)

IT Elements

(calcium Mg **phosphate fertilizers** and)

IT **Fertilizers**

(calcium Mg **phosphate**, additive effect on)

IT 7439-98-7, Molybdenum 7440-66-6, Zinc

(calcium Mg **phosphate fertilizers** in relation to)

IT 7440-42-8, Boron

(**fertilizer** (CaMg **phosphate**) in relation to)

IT 25618-23-9, Calcium magnesium **phosphate** 25618-23-9,

Magnesium calcium **phosphate**

(**fertilizers** contg., additive effect on)

IT 7439-96-5, Manganese

(in **fertilizers** (Ca Mg **phosphate**), effect on constitution and properties)

L35 ANSWER 29 OF 41 HCA COPYRIGHT 2009 ACS on STN

54:132900 Original Reference No. 54:25465e-f Lime-

superphosphate fertilizer topdressing of soils

derived from basalt and andesite and its effect on element levels of a grass. Wells, N. Colloq. congr. intern. sci. sol., 6th, Paris 224-30 From: Soils and Fertilizers 21, Abstr. No. 2051 (1958).

(Unavailable) 1956.

AB cf. CA 52, 4903e. By the leached-clay stage of weathering, Mo in the topsoil is not directly available to a grass on these soils. Lime-super topdressings release Mo to the grass, but where crystn. of Fe oxide is extensive the Mo release is slight. Lime-super reduced the capacity of the soil to retain the **MoO4** ion and substantially reduced the levels of Fe, Al, and Ti in the grass.

CC 15 (Soils and Fertilizers)

IT Hay

(**fertilizer** expts. with)

IT Lime

(**fertilizers** from **superphosphate** and, trace elements in grass in relation to)

IT **Fertilizers**

(lime and **superphosphate**, effect on trace elements in grass on andesite- and basalt-derived soil)

- IT Grasses
 (trace elements in, on andesite- and basalt-derived soil, effect of **CaO** and **superphosphates** on)
- IT Elements
 (trace or minor, in grass on andesite- and basalt-derived soil, effect of **CaO** and **superphosphates** on)
- IT 7440-32-6, Titanium
 (in grass on andesite- and basalt-derived soil, effect of **CaO** and **superphosphates** on)
- IT 7429-90-5, Aluminum 7439-89-6, Iron 7439-98-7, Molybdenum
 (in grasses, on andesite- and basalt-derived soil, effect of **CaO** and **superphosphates** on)

L35 ANSWER 30 OF 41 HCA COPYRIGHT 2009 ACS on STN
 53:126131 Original Reference No. 53:22669a-b Mushroom growing on synthetic manure composts. VI. Mushroom growing by new synthetic composts with trace elements. Takahashi, Zenjiro; Oka, Nobuko Toyo Kanzume Senshu Gakko Kenkyu Hokokusho, 4, 69-75 (Unavailable) 1954. CODEN: KHTKAE. ISSN: 0368-5659.

AB FTE fertilizer (MnO₂ 4.0, Fe₂O₃ 10.0, ZnO 4.0, CuO 4.0, B₂O₃ 2.0, and MoO₃ 0.2%), used with **CaCO₃**, was effective for the growth of mycelium. This effect was also ascertained with synthetic composts consisting of rice straw and N fertilizers. The mushrooms grown on this FTE-added medium were not harmed at all by such diseases as Bubbles, Brown spot, Brown blotch, Rose comb, and Open veils throughout their growth.

CC 15 (Soils and Fertilizers)

IT **Fertilizers**
 (compost, trace-element contg., mushroom growth on)

L35 ANSWER 31 OF 41 HCA COPYRIGHT 2009 ACS on STN
 52:27125 Original Reference No. 52:4913i,4914a Szilard-Chalmers effect in phosphate fertilizers irradiated with neutrons. Scheffer, F.; Ludwieg, F. (Univ. Gottingen, Germany). Naturwissenschaften, 44, 396 (Unavailable) 1957. CODEN: NATWAY. ISSN: 0028-1042.

AB cf. Thilo, C.A. 49, 6758e. The radiochem. introduction of impurities into phosphates by the Szilard-Chalmers effect and the conversion of phosphates and other P substances was investigated. After radiation, samples were dissolved in citric acid and the phosphate of H₃PO₄ was pptd. with (NH₄)₂MoO₄. The impurities, tagged with P³², consisted of about equal amts. of reduced P acids (HPO₂ and H₃PO₂) and condensed HPO₃.

CC 15 (Soils and Fertilizers)

IT Szilard-Chalmers reaction
 (in phosphate fertilizers irradiated with neutrons)

IT **Fertilizers**
 (phosphorus, neutron-irradiated, Szilard-Chalmers reaction in)

IT 12586-31-1, Neutron
 (phosphate **fertilizers** bombarded by, Szilard-Chalmers
 reaction in)

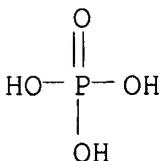
L35 ANSWER 32 OF 41 HCA COPYRIGHT 2009 ACS on STN
 37:15326 Original Reference No. 37:2503h-i The determination of P205
 in organo-mineral **fertilizers**. Sadovskii, P. I.
 Khimizatsiya Sotsialisticheskogo Zemledeliya, 9(No. 8), 49 From:
 Chem. Zentr. 1941, I, 1593. (Unavailable) 1940. CODEN:
 KSZEAZ. ISSN: 0368-6906.

AB cf. C. A. 36, 3120.5, 3312.1. High P205 values are obtained by
 ashing the org. substance with the addn. of H2O2 or Se. The addn.
 of **Mo oxide** and MgCl2 is recommended to prevent
 the volatilization of the **phosphoric acid** at the
 instant of its formation.

IT 7664-38-2, **Phosphoric acid**
 (detn. of, in **fertilizers**)

RN 7664-38-2 HCA

CN Phosphoric acid (CA INDEX NAME)



CC 15 (Soils, Fertilizers, and Agricultural Poisons)

IT **Fertilizers**
 (phosphoric acid in, detn. of)

IT 7664-38-2, **Phosphoric acid**
 (detn. of, in **fertilizers**)

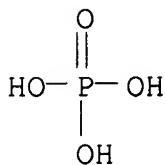
L35 ANSWER 33 OF 41 HCA COPYRIGHT 2009 ACS on STN

33:33378 Original Reference No. 33:4730h-i Rapid determination of
 available **phosphoric acid** in mixed
fertilizers. Timofeyuk, K. M. Zavodskaya Laboratoriya, 7,
 1311-12 (Unavailable) 1938. CODEN: ZVDLAU. ISSN:
 0321-4265.

AB In the detn. of available P205 in **fertilizers** by the
 Niessen method, quick results can be obtained by extg. P205 with
 Wagner's reagent, acidifying the soln. with a few drops of HNO3 to
 prevent the copptn. of **MoO3** with the phosphomolybdate ppt.
 and filtering through a Gooch crucible. Full details are given for
 the analysis of various types of **fertilizers** in 1 hr. with
 an accuracy to 0.3% of available P205.

IT 7664-38-2, **Phosphoric acid**
 (detn. of available, in **fertilizers**)

RN 7664-38-2 HCA
 CN Phosphoric acid (CA INDEX NAME)



CC 15 (Soils, Fertilizers, and Agricultural Poisons)

IT **Fertilizers**

(phosphoric acid in, detn. of)

IT **7664-38-2, Phosphoric acid**
 (detn. of available, in **fertilizers**)

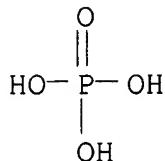
L35 ANSWER 34 OF 41 HCA COPYRIGHT 2009 ACS on STN

30:6086 Original Reference No. 30:801i,802a-e Study of some methods for the determination of **phosphoric acid** by precipitation as ammonium phosphomolybdate. Application to the analysis of **fertilizers**. Terlet, H.; Briau, A. Annales des Falsifications et des Fraudes, 28, 546-55 (Unavailable) 1935. CODEN: AFEFA4. ISSN: 0365-2157.

AB cf. C. A. 29, 2284.1. Scheffer's method, which is based on that of von Lorenz, consists in pptg. P2O5 as NH4 phosphomolybdate by addn. to the hot soln. of a large excess of NH4 molybdate soln. all at one time, washing the ppt. with Na2SO4 soln., dissolving the ppt. in excess of 0.5 N NaOH in presence of CH2O and titrating the excess of alkali with phenolphthalein as indicator. T. and B. confirmed that, in order to obtain complete pptn. in presence of citric acid, a large excess of precipitant is required, but if it is added all at once there is danger of entraining molybdic acid, thereby giving high results by either gravimetric or volumetric detn. of the ppt. According to Scheffer the ppt. has the following compn.: PO(
MoO3)12(OH4)3.2HNO3; and soln. takes place according to
 $4\text{PO}(\text{MoO}_3)_{12}(\text{OH}_4)_3.2\text{HNO}_3 + 112\text{NaOH} + 18\text{CH}_2\text{O} = 48\text{Na}_2\text{MoO}_4 + 8\text{NaNO}_3 + 4\text{Na}_2\text{HPO}_4 + 3(\text{CH}_2)_6\text{N}_4 + 82\text{H}_2\text{O}$, so that 1P2O5 = 56NaOH. This latter ratio was confirmed, and the end point in presence of CH2O is quite sharp, but no nitric N could be detected in the ppt., which is taken as an indication of entrainment of molybdic acid by the ppt. This entrainment can be prevented by adding the precipitant, drop by drop, and using only a slight excess when no citric acid is present. When the phosphomolybdate ppt. is washed with a neutral KNO3 soln., as suggested by Blair (Analysis of Iron and Steel), a variable amt. of the NH4 (up to 50%) is displaced by K; the same thing occurs, but to less extent and much more slowly, when the ppt. is washed with Na2SO4 as recommended by Scheffer; this reaction does not affect the results of titration in absence of CH2O, but gives low results in

its presence and gives high results if the phosphomolybdate ppt. is detd. gravimetrically. Accurate results can be obtained in both cases by washing first with NH₄NO₃ in HNO₃ and then with H₂O. Detailed directions are given for attacking natural Ca phosphates, **fertilizers** contg. org. matter (bone phosphates, guanos, etc.), superphosphates, activated phosphates and mixed **fertilizers**, basic slags, and alkali phosphates, and for pptg. P₂O₅ in the soln. of the **fertilizer** both in the absence and in presence of citrate.

IT 7664-38-2, **Phosphoric acid**
 (detn. of)
 RN 7664-38-2 HCA
 CN Phosphoric acid (CA INDEX NAME)



CC 15 (Soils, Fertilizers, and Agricultural Poisons)

IT Alkali metal phosphates

Fertilizers

Guano

Phosphates

Slags

(**phosphoric acid** detn. in)

IT **Fertilizers**

(placement of, detn. of)

IT 7664-38-2, **Phosphoric acid**

(detn. of)

IT 10103-46-5, Calcium phosphate
 (**phosphoric acid** detn. in)

L35 ANSWER 35 OF 41 HCA COPYRIGHT 2009 ACS on STN

21:6353 Original Reference No. 21:787a-d Iodometric **phosphoric**

acid determination in plant products and agricultural soils.

Frodl, Friedrich Chemiker-Zeitung, 50, 825-7, 839-40, 868-9

(Unavailable) 1926. CODEN: CMKZAT. ISSN: 0009-2894.

AB Results are described in detail of expts. oil the adaptation of Artmann's iodometric method (C. A. 4, .1442) to the detn. of P₂O₅ in plant products and in soils. The method is based on the quant. decompn. of the NH₃ of (NH₄)₃PO₄.12MoO₃ by NaOBr and titration of the I₂ liberated from KI by the excess of NaOBr. Oxalic acid finally proved the most satisfactory for acidifying the reaction mixt., since it forms complexes with MoO₃, preventing reduction of the latter by HI, and since it is not attacked by I,

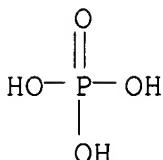
allowing the quant. liberation of the latter. By the addn. of excess KI and excess $(COOH)_2$ oxidation of the latter is so slow as to be negligible. However, the method is not reliable for such materials as **fertilizers** where larger amts. of stronger NaOBr would have to be employed. For plant materials the sample (5, 10 or 20 g.) is ashed wet with HNO₃ and H₂SO₄, the P₂O₅ ptd. with sulfate-molybdate soln. by Lorenz's method, the filtered, washed and dried ppt. treated with an excess of standard NaOBr (8 cc.) and 0.5 N NaOH added drop by drop until soln. is complete. When the evolution of N has ceased, 0.5-0.75 g. of KI and 50 cc. of approx. 2 N $(COOH)_2$ are added and after 5 min. the liberated I₂ is titrated with 0.1 N Na₂S₂O₃. For soils a 25-g. sample is boiled 0.5 hr. with 200 cc. of HNO₃ (d. 1.2), dild. with water, cooled, treated with 10 cc. of concd. H₂SO₄, made up to a vol. of 500 cc. and the P₂O₅ detd. as described for plant materials. The results by this method checked well with detns. made gravimetrically by Lorenz's method. For further details of analytical procedure and precautions to be exercised the original should be consulted.

IT 7664-38-2, **Phosphoric acid**

(detn. of, in plants and soils)

RN 7664-38-2 HCA

CN Phosphoric acid (CA INDEX NAME)



CC 15 (Soils, Fertilizers, and Agricultural Poisons)

IT Plants

(phosphoric acid detn. in)

IT 7664-38-2, **Phosphoric acid**

(detn. of, in plants and soils)

L35 ANSWER 36 OF 41 HCA COPYRIGHT 2009 ACS on STN

13:13684 Original Reference No. 13:2722b-i,2723a-b The determination of phosphoric oxide, particularly in **fertilizers**, soil extracts and the like. de Coligny Marchand, Bernard South African Journal of Science, 15, 357-63 (Unavailable) 1919. CODEN: SAJSAR. ISSN: 0038-2353.

AB The method as here described is due to the late H. J. Vipond and is a combination of von Lorenz's method of pptn. for NH₄ phosphomolybdate and Pemberton's volumetric method for the detn. of the ppt. The von Lorenz method departs from the usual method of pptg. the NH₄ phosphomolybdate, in that no NH₄NO₃ is used, while (NH₄)₂SO₄ is used instead. Soln. of the B₂O₅ may be made by any of

the methods generally employed, e. g., boiling the substance with HNO₃ or the soil exts. may be ignited and ground. The reagents required are: (1) Sulfate-molybdate reagent: Prepare by dissolving 300, g. of NH₄ molybdate in 1 l. of water, and pour the soln. in a thin stream into 1 l. of HNO₃ (1.36), in which 100 g. of (NH₄)₂SO₄ has been dissolved. The mixt. is allowed to stand in the dark for 48 hrs., the clear soln. decanted or filtered off, and kept in brown, glass-stoppered bottles in the dark. (2) Sulfuricnitric acid mixt.: 30 cc. of H₂SO₄, (1.84) are added to 1 l. of HNO₃ (1.20). (3) Nitric acid (1.20). (4) Sodium nitrate, 3% soln. The pptn. is carried out as follows: 10 to 25 cc. of the soln. to be analyzed, corresponding to 0.1 to 0.25 g. of the original substance, are placed in a beaker of about 250 cc. capacity. If the soln. is made with HNO₃, sufficient of the H₂SO₄-HNO₃ mixt. , and if the soln. is made with H₂SO₄, sufficient of the HNO₃ (1.20), is added to bring the vol. of the liquid in the beaker up to exactly 50 cc., i. e., if 10 cc. of a soln. made with HNO₃ is taken, 40 cc. of the H₂SO₄HNO₃ mixt. must be added, or if 25 cc. of a soln. made with H₂SO₄ be taken; 25 cc. of HNO₃ (1.20) must be added. The soln. is heated on a wire gauze until the first appearance of bubbles; then the beaker is removed from the flame and rotated for a few seconds to prevent the sides of the beaker from being overheated. 50 cc. of the molybdate reagent are then added rapidly, without allowing it to come in contact with the sides of the beaker. The beaker is allowed to stand for a few min., not more than 5, and then rotated rapidly for about 1/2 min. The mixt. is allowed to stand for 2 to 18 hrs. (in practice overnight is convenient) and filtered off at the pump through a Gooch crucible fitted with a circular disk of filter paper. The ppt. is washed with the 3% NaNO₃ soln. until the washings are free from acid. The ppt. together with the filter paper is transferred to the beaker in which the pptn. took place, by means of the NaNO₃ soln., and dissolved in a slight excess of standard NaOH soln. About 0.5 cc. of phenolphthalein soln. (1%) is added, and the excess of NaOH titrated back with standard acid. HCl, HNO₃ or H₂SO₄, may be used. M. ascertained the exact relation between 0.1 N alkali and the NH₄ phosphomolybdate ppt. as obtained by the von Lorenz method. The equation for the reaction is as follows: (NH₄)₆P₂O₈.24 MoO₃.4HNO₃.2H₂O + 50NaOH = 2(NH₄)₂HPO₄ + (NH₄)₂MoO₄ + 23Na₂MoO₄ + 4.NaNO₃. + 28H₂O. The compn. of the ppt. (NH₄)₃P₂O₇.12MoO₃.2HNO₃.H₂O is given according to Hundeshagen. The mean factor as calcd. from amts. of P₂O₅ theoretically present is 0.000284 while that calcd. from the amts. of P₂O₅, found by the gravimetric method is 0.000285. The mean ratio of NaOH to P₂O₆ is 49.8: 1, a close approximation to the theoretical ratio of 50:1 deduced from Hundeshagen's formula. The ratio of 50 mols. of NaOH to one mol. of P₂O₅ is correct and the factor for conversion of cc. of 0.2 N NaOH to g. of P₂O₅ is 0.000284. It is necessary to perform the soln. of the NH₄

phosphomolybdate in NaOH as rapidly as possible, and titrate back with acid without delay. A large excess of NaOH is to be avoided due to the danger of loss of NH₃. The large quantity of indicator is necessitated by the obscuring of the end point in the presence of NH₄ salts. The author believes that the method is capable of greater accuracy than methods in which the P₂O₅ is weighed as Mg pyrophosphate. A note is also appended for the recovery of NH₄ molybdate from residues.

CC 15 (Soils, Fertilizers, and Agricultural Poisons)

IT **Fertilizers**

(phosphoric acid detn. in)

L35 ANSWER 37 OF 41 HCA COPYRIGHT 2009 ACS on STN

8:9857 Original Reference No. 8:1478d-h Application of the titrimetric method of Pemberton to the analysis of all **fertilizers** containing phosphates. Ledoux, L. Bulletin des Societes Chimiques Belges, 27, 170-2 (Unavailable) **1914**. CODEN: BSCBAG.
ISSN: 0037-9646.

AB L. has previously shown that P₂O₅, may be pptd. in the cold by (NH₄)₂MoO₄ (use of a mechanical shaker); values in agreement with those of the most exact methods are obtained when the ppt. (which is absolutely pure and free from MoO₃) is treated by the Pemberton method. The soln. of KOH is such that 1 cc. corresponds to 1 mg. P₂O₅ and the H₂SO₄ soln. is of equiv. conc. The following procedure is employed for various phosphate-containing materials: For superphosphates (a) take 25 cc. of the aq. and citrate solns., add several drops of a conc. Fe₂C₁₆ soln. and 15 cc. conc. HNO₃; boil 10 min., cool and add 10 cc. NH₄OH (sp. gr. 0.920); cool, mix with 100 cc. molybdic soln. and place in mechanical shaker. For detn. of total P₂O₅ in phosphate slags (b) place 5 g. slag in 500 cc. flask and boil with 10 cc. conc. HNO₃ and 20 cc. conc. HCl until SiO₂, is pptd.; complete vol. to 500 cc. with dist. H₂O and remove 25 cc.; add a slight excess of NH₄OH, redissolve (with a little HNO₃ the ppt. formed, add 5 cc. 10% citric acid soln. and 10 cc. conc. HNO₃, boil 10 min., cool and add 10 cc. NH₄OH (sp. gr. 0.920); cool, dil. and place in shaker with 100 cc. (NH₄)₂MoO₄ soln. For mineral phosphates (c) proceed as for slags. For detn. in slags (d) of P₂O₅ sol. in 2% citric acid soln. (Wagner method) take 25 cc. of the citric acid soln., add 15 cc. cone. HNO₃ boil 10 min., cool, add 10 cc. NH₄OH (sp. gr. 0.920) and place in shaker with 100 cc. (NH₄)₂MoO₄ soln.; agitation should continue 1/2 hr. The treatment of the phosphomolybdate ppt. is as follows: collect the ppt. on a 9 cm. filter and wash first with 1 % HNO₃ and finally with pure H₂O (about 100 cc. are required) until complete disappearance of acidity; the ppt. obtained as above described is cryst. and insol. in H₂O, so there is no loss incurred in washing. Place the ppt. in the ptn. flask, add a little dist. H₂O and finally 50 cc. standard KOH soln. and titrate excess of the latter with H₂SO₄.

CC 15 (Soils and Fertilizers)

IT **Fertilizers**

(**phosphoric acid** detn. in)

IT 7723-14-0, Phosphorus
(analysis, detn. in **fertilizers**)

L35 ANSWER 38 OF 41 HCA COPYRIGHT 2009 ACS on STN

3:171 Original Reference No. 3:33e-h A Modification of the Volumetric Molybdate Method for the Estimation of **Phosphoric Acid** in Acid Phosphates and Commercial **Fertilizers**

Williams, R. Chem. Eng., 8, 97-9 (Unavailable) 1909.

AB The official method yields high results (often 1% or more) when H₂SO₄ or acid sulphates are present, and also if more than 35 cc. (NH₄)₂MoO₄ solution is used. Arsenic, although it occurs but rarely, is at least partially precipitated. To avoid these errors the author proceeds as follows: Dissolve the material in the most suitable acid, avoiding a great excess, make up to a definite volume, transfer an aliquot part to a tall beaker or Erlenmeyer, add 1 cc. Fe₂C₁₆ and CaCl₂ solution (10 g. of each to 100 cc.), mix and add NH₄OH in slight excess. Then pour in about 150 cc. boiling water, shake, allow to settle, filter and wash once with hot water, stirring up the precipitate with the jet of water. Dissolve the ppt. in hot dilute HNO₃ (7 cc. HNO₃, d. 1.42, in 100) catching the filtrate in the vessel in which precipitation was made, and washing with the acid till the solution measures about 100-125 cc. Nearly neutralize with NH₄OH, add 30-35 cc. (NH₄)₂MoO₄ solution, gently rotating the hot liquid all the time, shake about 1 min., allow to settle (about 10 min.) and filter through the same filter used at first. From this point the treatment is the same as usual.

Analyses of several **fertilizers**, and of laboratory mixtures containing known amounts of P₂O₅, show excellent agreement between the official gravimetric method and the above volumetric. The official volumetric gave high results in nearly every case.

CC 7 (Analytical Chemistry)

IT **Fertilizers**

(**phosphoric acid** detn. in)

IT 7723-14-0, Phosphorus
(analysis, detn. in **fertilizers**)

L35 ANSWER 39 OF 41 HCA COPYRIGHT 2009 ACS on STN

0:159224 Snaps determination of the **phosphoric acid**

by weighing of the Ammonium phosphomolybdates. [machine translation]. Graftiau, J. (Loewen. Anal. Staatslab.). Bull. de l'Assoc. des Chim. de Sucr. et Dist., 24, 315-20 From: Chem. Zentr., 1906, II, 1737-1738 (Unavailable) 1906.

AB [Machine Translation of Descriptors]. From in usual way the manufactured solutions of the **fertilizers** or phosphates uses content depending upon the P₂O₅ so much, when substance

corresponds to 0.1-0.4 g. Acidic solutions neutralized with NH₃ up to the formation precipitation, which is with HNO₃ again to solve, 10 ccm ammonium CIT advice solution (after PETERMANN) admits and proceeds as with citrate containing solutions. With these one admits directly concentrated HNO₃, 10-15 ccm saturated nitrate of ammonia solution and 50-75 ccm water to 2-3 ccm, brings to heating, far away from the flame and gives at one time 60 to 100 ccm molybdenum solution (110 g MoO₃ are poured in 400 ccm NH₃ 0.96 solved from the density and the solution slowly in 1,5 l HNO₃ by the density 1.20) and serve with about 70° 15-30 min. One sucks the perfectly clear liquid off to largest parts and brings the precipitation into a Gooch crucible, only in the middle part punched and with 2 cm diameters a possessing disk from evenly thick filter paper, as well as with 2 ccm of a mixing into a paste with of paper fibers (1 g filter paper in 1 L water) is fed. One washes 1% with small quantities. HNO₃, presses the washed crucibles to a situation filter paper, dries about 2 hours with 105-110° and balances after cooling off in the desiccator. The tare of the paper filter assume as constant, since the small fluctuations are not possible with the high weight precipitation. Precipitation of + 0,0375 = P₂O₅. The check analyzes show very satisfactory agreement with the CIT advice method for superphosphates and mix fertilizers, with molybdenum method of SONNENSCHEIN (after Methodes de convention pour l'analyze D. material of fertilisantes etc. Luxembourg was found less 1904) on the average 0.54%. The procedure of SONNENSCHEIN leads however after author to wrong results, since the precipitation of Mg₂P₂O₇ always contains a substantial quantity of trimagnesium phosphate.

CC 7 (Analytical Chemistry)

L35 ANSWER 40 OF 41 HCA COPYRIGHT 2009 ACS on STN

0:152968 For the Determination of the **Phosphoric Acid**

in **Fertilizers** as Phosphorus Molybdenum Acid Anhydride.

[machine translation]. Berju, Georg (Berlin. Agron.-pedol. Inst. d. landw. Hochschule). Landwirtschaftliche Jahrbuecher, 54, 31-46

From: Chem. Zentr., 1906, I, 1049 (Unavailable) 1906.

CODEN: LWSJAK.

AB [Machine Translation of Descriptors]. Comparative investigations on the determination of the P₂O₅ after of P. NEUMANN (Z. f. anal. Ch. vo. 37, pg. 303; C. vo. 98, II. pg. 379) suggested the procedure of weighing by annealing yellow molybdenum precipitate of the received black anhydride and after some other procedure resulted in: 1. The methods examined here, which aim at a simplification of the investigation by direct precipitation of the P₂O₅ as MgNH₄PO₄, resulted in nearly permeable to high results. 2. The determination as 24 MoO₃.cntdot.P₂O₅ after P. NEUMANN resulted in very exact results without exception, also the application of the different solvents for the solution of the P₂O₅ from the

fertilizers concerned, as well as the present dissolved SiO₂ in HCl or citric acid solution without influence on the accuracy. 3. The NEUMANN method is at least so simple and in equal short time feasible, as the direct regulation procedures of the P₂O₅ as Mg₂P₂O₇. 4. With high-per cent phosphates, the precipitation with approximately 100 ccm of the molybdenum solution is recommended. (NH₄NO₃ containing solution after WAGNER-STUTZER) causes to use or determine only 0.25 g substance.

CC 7 (Analytical Chemistry)

L35 ANSWER 41 OF 41 HCA COPYRIGHT 2009 ACS on STN
0:48507 A gravimetric method of estimating **phosphoric acid** as ammonium phosphomolybdate. Gladding, Thomas S. Journal of the American Chemical Society, 18(1), 23-7 (English)
1896. CODEN: JACSAT.

AB The estimation of **phosphoric acid** by weighing the yellow precipitate of ammonium phosphomolybdate has been attempted, but except in iron analysis, where the amount of phosphorus is very small, such a method has never yet been successful. Thus, a method of procedure that yields a precipitate of a very uniform composition and would seem to afford the simplest and easiest method yet presented for estimating **phosphoric acid** is described. In this method, the formation of a pure granular precipitate of uniform composition and free from occluded salts, is obtained by the gradual addition drop by drop of the molybdate solution with constant stirring. The completeness of the precipitation of the **phosphoric acid** is attained by the presence of a large amount of ammonium nitrate. The separation of molybdic oxide or iron salt is avoided by the low temperature employed. An application of this method to the direct determination of reverted or citrate soluble **phosphoric acid** promises good results.

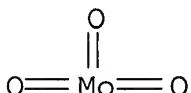
IT 1313-27-5, Molybdic oxide 7664-38-2,

Phosphoric acid

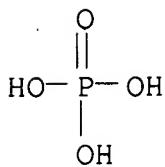
(gravimetric method of estimating **phosphoric acid** as ammonium phosphomolybdate)

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



RN 7664-38-2 HCA
CN Phosphoric acid (CA INDEX NAME)



CC 7 (Analytical Chemistry)

IT Combustion

Fertilizers

(gravimetric method of estimating **phosphoric acid** as ammonium phosphomolybdate)

IT 1344-70-3, Copper oxide 7632-50-0, Ammonium citrate
(gravimetric method of estg. **phosphoric acid** as ammonium phosphomolybdate)

IT 56-81-5, Glycerol **1313-27-5**, Molybdic oxide 1314-56-3,
Phosphorus pentoxide 1333-74-0, Hydrogen 6484-52-2, Ammonium
nitrate 7439-89-6, Iron **7664-38-2**, **Phosphoric acid**
7664-41-7, Ammonia 7664-93-9, Sulfuric acid
7697-37-2, Nitric acid 7732-18-5, Water 7782-91-4, Molybdic acid
12704-86-8, Ammonium phosphomolybdate
(gravimetric method of estimating **phosphoric acid** as ammonium phosphomolybdate)

=> D L36 1-18 CBIB ABS HITSTR HITIND

L36 ANSWER 1 OF 18 HCA COPYRIGHT 2009 ACS on STN

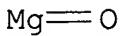
142:176086 Glassy and glassy crystalline microfertilizers containing antibacterial elements. Rangelova, N.; Samuneva, B.; Djambaski, P.; Bozadjiev, P.; Kashchieva, E. (University of Chemical Technology and Metallurgy, Sofia, 1756, Bulg.). Journal of the University of Chemical Technology and Metallurgy, 38(4), 1263-1270 (English) 2003. CODEN: JUCTB3. ISSN: 1311-7629. Publisher: University of Chemical Technology and Metallurgy.

AB During the last years an increasing interest has been shown in controlled-release glasses which can be successfully applied with considerable ecol. effect in the agriculture and human and veterinary medicine. In the present work glassy and glassy-cryst. materials of the SiO₂-P₂O₅-B₂O₃-K₂O system contg. the antibacterial elements Ag, Zn and Cu and the micronutrients Mn, Fe, Mo, B and Mg have been synthesized. It was proved that these materials are suitable for practical use because they can supply the plants with the nutritive and antibacterial elements for a long or short period of time in dependence of their chem. compn. and granularity.

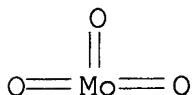
IT **1309-48-4**, **Magnesium oxide (MgO)**, biological studies **1313-27-5**, **Molybdenum**

oxide (MoO₃), biological studies
 (glass, borophosphosilicate; glassy and glassy-cryst.
 borophosphosilicate materials as micronutrient
fertilizers contg. antibacterial elements)

RN 1309-48-4 HCA
 CN Magnesium oxide (MgO) (CA INDEX NAME)



RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 Section cross-reference(s): 5, 57
 ST borophosphosilicate glass trace element **fertilizer**
 antibacterial
 IT Trace elements, biological studies
 (antibacterial; glassy and glassy-cryst. borophosphosilicate
 materials as micronutrient **fertilizers** contg.
 antibacterial elements)
 IT **Fertilizers**
 (controlled-release, trace elements; glassy and glassy-cryst.
 borophosphosilicate materials as micronutrient
fertilizers contg. antibacterial elements)
 IT Antibacterial agents
 (glassy and glassy-cryst. borophosphosilicate materials as
 micronutrient **fertilizers** contg. antibacterial
 elements)
 IT Trace element nutrients
 (glassy and glassy-cryst. borophosphosilicate materials as
 micronutrient **fertilizers** contg. antibacterial
 elements)
 IT Dissolution
 (of trace element-contg. glassy **fertilizers**)
 IT Borophosphosilicate glasses
 (potassium borophosphosilicate; glassy and glassy-cryst.
 borophosphosilicate materials as micronutrient
fertilizers contg. antibacterial elements)
 IT 1309-37-1, Ferric oxide, biological studies **1309-48-4**,
Magnesium oxide (MgO), biological
 studies **1313-27-5**, **Molybdenum oxide (MoO₃)**, biological studies **1314-13-2**, Zinc oxide (ZnO),

biological studies 1317-38-0, Cupric oxide, biological studies 1344-43-0, Manganese oxide, biological studies 20667-12-3, Silver oxide (Ag₂O)

(glass, borophosphosilicate; glassy and glassy-cryst. borophosphosilicate materials as micronutrient **fertilizers** contg. antibacterial elements)

IT 7439-89-6, Iron, biological studies 7439-95-4, Magnesium, biological studies 7439-96-5, Manganese, biological studies 7439-98-7, Molybdenum, biological studies 7440-22-4, Silver, biological studies 7440-42-8, Boron, biological studies 7440-50-8, Copper, biological studies 7440-66-6, Zinc, biological studies
(glassy and glassy-cryst. borophosphosilicate materials as micronutrient **fertilizers** contg. antibacterial elements)

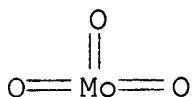
IT 1303-86-2, Boron oxide (B₂O₃), uses 1314-56-3, Phosphorus pentoxide, uses 7631-86-9, Silica, uses 12136-45-7, Potassium oxide, uses
(glassy and glassy-cryst. borophosphosilicate materials as micronutrient **fertilizers** contg. antibacterial elements)

L36 ANSWER 2 OF 18 HCA COPYRIGHT 2009 ACS on STN
141:259983 Silicate glass as **fertilizer**. Stoch, Leszek;
Stoch, Zofia; Waclawska, Irena (Akademia Gorniczo-Hutnicza im.
Stanislawa Staszica, Pol.). Pol. PL 185229 B1 **20030430**, 4
pp. (Polish). CODEN: POXXA7. APPLICATION: PL 1997-324092
19971229.

AB The manuf. of silicate glass as Mg-Ca-P **fertilizer** is described. The glass is made from low-cost raw materials and byproducts of glass industry (serpentinite, apatite, peridotite, potassium carbonate). The **fertilizer** contains 27 wt.% SiO₂, 15-30 wt.% **MgO** (SiO₂/**MgO** ratio 0.8-1.8), 0-25 wt.% P₂O₅, and 0-20 wt.% K₂O; **CaO** is present to provide **CaO/MgO** ratio ≥0.8. The glass can addnl. contain microelements (Cu, Zn, B, Mn, Mo) added mostly as oxides and fungicides in total amt. of ≤10 wt.%. The glass is crushed to particle size 0.1-0.3 mm for field application.

IT **1313-27-5, Molybdenum oxide**, biological studies
(silicate glass manuf. for use as Mg-Ca-P **fertilizer** with microelements)

RN 1313-27-5 HCA
CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC ICM C05D009-00
 ICS C03C003-062
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST silicate glass **fertilizer** manuf
 IT Apatite-group minerals
Fertilizers
 Peridotite
 Serpentinite
 Silicate glasses
 (silicate glass manuf. for use as Mg-Ca-P **fertilizer**
 with microelements)
 IT 584-08-7, Potassium carbonate 1303-86-2, Boron oxide (B₂O₃),
 biological studies 1313-13-9, Manganese oxide, biological studies
1313-27-5, Molybdenum oxide, biological
 studies 1314-13-2, Zinc oxide (ZnO), biological studies
 1317-38-0, Copper oxide, biological studies 7439-95-4, Magnesium,
 biological studies 7439-96-5, Manganese, biological studies
 7439-98-7, Molybdenum, biological studies 7440-09-7, Potassium,
 biological studies 7440-42-8, Boron, biological studies
 7440-50-8, Copper, biological studies 7440-66-6, Zinc, biological
 studies 7440-70-2, Calcium, biological studies 7631-86-9,
 Silica, biological studies 7723-14-0, Phosphorus, biological
 studies 10043-35-3, Boric acid, biological studies
 (silicate glass manuf. for use as Mg-Ca-P **fertilizer**
 with microelements)

L36 ANSWER 3 OF 18 HCA COPYRIGHT 2009 ACS on STN
 139:116829 Biochemical activity of glassy **fertilizers**.
 Waclawska, Irena; Stoch, Leszek; Ostrowska, Janina (Wydz. Inz.
 Mater. i Ceramiki, Akad. Gorniczo-Hutnicza, Krakow, 30-059, Pol.).
 Prace Komisji Nauk Ceramicznych, Ceramika (Polska Akademia Nauk),
 66(1, Postepy Technologii Ceramiki, Szkla i Budowlanych Materialow
 Wiazacych), 169-175 (Polish) **2001**. CODEN: PKNCE6. ISSN:
 0860-3340. Publisher: Polskie Towarzystwo Ceramiczne.

AB Glasses of the K₂O-**MgO-CaO-P₂O₅-SiO₂** system
 contg. trace elements (MnO, CuO, B₂O₃, **MoO₃**, ZnO, Fe₂O₃)
 which act as controlled-release **fertilizers** were studied.
 The biochem. activity of glasses was estd. on the basis on their
 solv. in soils differing in temp., pH value, content of nutrients,
 and amt. of plant roots (in-vivo expts.). It has been found that
 the mechanism of biochem. activity of glassy **fertilizers**
 is based on their incongruent dissoln. It comprises gradual

destruction of the internal structure of glasses under the influence of active components of soil and washing out of the glass components. Near the glass-soln. interphase boundary, a layer of metastable solid products is formed. These compds. bind a considerable part of the cations-glass modifiers; subsequently they also undergo gradual dissoln. The succession of washing out of the glass components depends on strengths of the oxygen bridges combining these components in the glass structure.

IT 1305-78-8, **Calcium oxide** (CaO)
(**Ca**), biological studies 1309-48-4, **Magnesium oxide** (MgO), biological studies
(glass, phosphosilicate; dissoln. of glassy **fertilizers** and controlled release of nutrients)

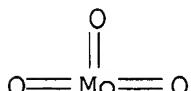
RN 1305-78-8 HCA
CN Calcium oxide (CaO) (CA INDEX NAME)

Ca == O

RN 1309-48-4 HCA
CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg == O

IT 1313-27-5, **Molybdenum oxide** (MoO₃), biological studies
(glasses contg.; dissoln. of glassy **fertilizers** and controlled release of nutrients)
RN 1313-27-5 HCA
CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
Section cross-reference(s): 57
ST phosphosilicate glass **fertilizer** dissoln nutrient release;
trace element glass controlled release **fertilizer**
IT **Fertilizers**
(controlled-release, glassy; dissoln. of glassy **fertilizers** and controlled release of nutrients)
IT Mineral elements, biological studies
Phosphosilicate glasses
Trace element nutrients
(dissoln. of glassy **fertilizers** and controlled release

- of nutrients)
- IT Dissolution
 (glassy **fertilizer** dissoln. and controlled release of nutrients)
- IT 7439-89-6, Iron, biological studies 7439-95-4, Magnesium, biological studies 7439-96-5, Manganese, biological studies 7439-98-7, Molybdenum, biological studies 7440-09-7, Potassium, biological studies 7440-21-3, Silicon, biological studies 7440-42-8, Boron, biological studies 7440-50-8, Copper, biological studies 7440-70-2, Calcium, biological studies 7723-14-0, Phosphorus, biological studies
 (dissoln. of glassy **fertilizers** and controlled release of nutrients)
- IT **1305-78-8, Calcium oxide (CaO)**, biological studies **1309-48-4, Magnesium oxide (MgO)**, biological studies 1314-56-3, Phosphorus oxide (P2O5), biological studies 7631-86-9, Silica, biological studies 12136-45-7, Potassium oxide (K2O), biological studies
 (glass, phosphosilicate; dissoln. of glassy **fertilizers** and controlled release of nutrients)
- IT 1303-86-2, Boron oxide (B2O3), biological studies 1309-37-1, Ferric oxide, biological studies **1313-27-5**, **Molybdenum oxide (MoO3)**, biological studies 1314-13-2, Zinc oxide (ZnO), biological studies 1317-38-0, Cupric oxide, biological studies 1344-43-0, Manganous oxide, biological studies
 (glasses contg.; dissoln. of glassy **fertilizers** and controlled release of nutrients)

L36 ANSWER 4 OF 18 HCA COPYRIGHT 2009 ACS on STN

137:124730 Method for treatment of excrements and sludges, carbonized products obtained by the method, and **fertilizers** using the carbonized products. Takamura, Shuichi (Japan). Jpn. Kokai Tokkyo Koho JP 2002219497 A **20020806**, 10 pp. (Japanese).
 CODEN: JKXXAF. APPLICATION: JP 2001-19303 20010126.

AB Sewage sludges are mixed with materials contg. **CaO** and perlite and the mixts. are carbonized to give carbonized products, useful for **fertilizers**, soil amendments, deodorizing agents, adsorbents, etc. Excrements (10 L) of cows were stirred with 1100 g **CaO** and 300 g expanded perlite for wt. redn. to .apprx.40 wt.% and carbonized at 450° for 60 min to give carbonized products (wt. reduced to approx. 5-10%) showing no unpleasant odor and 92% removal of NH3 from air.

IT **1305-78-8, Calcium oxide**, biological studies
 (carbonization of excrements and sludges with **CaO** and perlite for **fertilizers**, adsorbents and deodorizing

agents)

RN 1305-78-8 HCA

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca==O

IT **11098-99-0, Molybdenum oxide**

(photocatalyst; carbonization of excrements and sludges with CaO and perlite for **fertilizers**, adsorbents and deodorizing agents)

RN 11098-99-0 HCA

CN Molybdenum oxide (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM C02F011-10

ICS B01D053-86; B01J021-18; B01J032-00; B01J035-02; C01B031-10;
C05G003-00

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)

Section cross-reference(s): 59, 60

ST excrement sludge carbonization quicklime perlite **fertilizer**

; soil amendment manure carbonization perlite quicklime;

deodorization adsorbent excrement carbonization quicklime perlite

IT Adsorbents

Carbonization

Deodorants

Manure

Photolysis catalysts

Sludges

Soil amendments

(carbonization of excrements and sludges with CaO and perlite for **fertilizers**, adsorbents and deodorizing agents)

IT Perlite

(carbonization of excrements and sludges with CaO and perlite for **fertilizers**, adsorbents and deodorizing agents)

IT **Fertilizers**

(carbonization of excrements and sludges with CaO and perlite for **fertilizers**, adsorbents and deodorizing agents)

IT Air purification

(deodorization; carbonization of excrements and sludges with CaO and perlite for **fertilizers**, adsorbents and deodorizing agents)

IT Oxides (inorganic), biological studies

(photocatalysts; carbonization of excrements and sludges with CaO and perlite for **fertilizers**, adsorbents and deodorizing agents)

- IT 1305-78-8, Calcium oxide, biological studies
 (carbonization of excrements and sludges with **CaO** and perlite for **fertilizers**, adsorbents and deodorizing agents)
- IT 1304-76-3, Bismuth oxide, biological studies 1306-19-0, Cadmium oxide, biological studies 1310-53-8, Germanium oxide, biological studies 1313-96-8, Niobium oxide 1314-13-2, Zinc oxide, biological studies 1314-23-4, Zirconium oxide, biological studies 1314-35-8, Tungsten oxide, biological studies 1314-61-0, Tantalum oxide 1332-29-2, Tin oxide 1332-37-2, Iron oxide, biological studies 1335-25-7, Lead oxide 1344-70-3, Copper oxide
11098-99-0, Molybdenum oxide
 11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11113-84-1, Ruthenium oxide 11118-57-3, Chromium oxide 11129-60-5, Manganese oxide 12060-59-2, Strontium titanate 12624-27-0, Rhenium oxide 12680-36-3, Rhodium oxide 13463-67-7, Titanium oxide, biological studies
 (photocatalyst; carbonization of excrements and sludges with **CaO** and perlite for **fertilizers**, adsorbents and deodorizing agents)

L36 ANSWER 5 OF 18 HCA COPYRIGHT 2009 ACS on STN
 136:371788 Drought-resistant nutrients for plants. Yao, Shishun; Zhao, Yue; Hai, Bo (Zhongzuo Group Co., Ltd., Peop. Rep. China). Faming Zhuanli Shengqing Gongkai Shuomingshu CN 1316403 A **20011010**, 5 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2001-114699 20010516.

AB The title nutrients are composed of water-absorbing resins(e.g., polyacrylates, 40-60 mesh, water absorptivity 600-850 g/g) 30-50, org. microorganism **fertilizers**(e.g., fermented manures) 30-50, inorg. **fertilizers** 9-25, and phytohormone(e.g., humic acids) 1-5 wt.%.

IT 1309-48-4, Magnesia, uses 11098-99-0,
Molybdenum oxide
 (in drought-resistant nutrients for plants)

RN 1309-48-4 HCA
 CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg=O

RN 11098-99-0 HCA
 CN Molybdenum oxide (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 IC ICM C05F011-08
 ICS B01J020-26; A01N065-00
 CC 48-11 (Unit Operations and Processes)

Section cross-reference(s): 19

IT 57-13-6, Urea, uses **1309-48-4, Magnesia**, uses
 1314-13-2, Zinc oxide, uses 1314-56-3, Phosphorus oxide, uses
 1332-37-2, Iron oxide, uses 1344-70-3, Copper oxide 9003-01-4D,
 Polyacrylic acid, salts 10043-35-3, Boric acid, uses
11098-99-0, Molybdenum oxide
 11129-60-5, Manganese oxide 12136-45-7, Potassium oxide, uses
 26445-01-2, Naphthyl acetic acid
 (in drought-resistant nutrients for plants)

L36 ANSWER 6 OF 18 HCA COPYRIGHT 2009 ACS on STN

135:92074 Germanium and selenium-enriched glass **fertilizer** and
 the method for producing the same. Zhao, Shanmao; Zhang, Zhao;
 Xiao, Dazhuang (Peop. Rep. China). PCT Int. Appl. WO 2001049636 A1
20010712, 17 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT,
 AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CR, CU, CZ, DE, DK, DM, DZ,
 EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,
 KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,
 MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI; RW: AT, BE, BF, BJ, CF,
 CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC,
 ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Chinese). CODEN: PIXXD2.
 APPLICATION: WO 2001-CN8 20010104. PRIORITY: CN 2000-100070
 20000104.

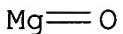
AB The present invention relates to a germanium and selenium-enriched
 glass **fertilizer** which fly-ash acts as the main component
 and the prodn. method. The process comprises adding coals and
 vitrified additives into boiler and burning to obtain flue gases
 which include germanium and selenium-enriched hyaline fly-ash, then
 cooling and sepg. in the duster to obtain a germanium and
 selenium-enriched hyaline material, the processing to a germanium
 and selenium-enriched glass **fertilizer**. After being
 denitrified, desulfurized and defluorinated, the flue gases are
 discharged into air. The method is simple, and the products can be
 used as functional glass **fertilizer**, and as the industrial
 material for producing selenium and germanium. The process is one
 of the complex utilization methods of coal slags.

IT **1305-78-8, Calcium oxide**, biological
 studies **1309-48-4, Magnesium oxide**,
 biological studies **1313-27-5, Molybdenum
 oxide**, biological studies
 (germanium and selenium-enriched glass **fertilizer** and
 the method for producing the same)

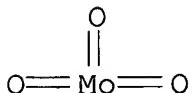
RN 1305-78-8 HCA
 CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1309-48-4 HCA
 CN Magnesium oxide (MgO) (CA INDEX NAME)



RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC C05G003-00; C05G001-00; C05D009-02; C03C006-10
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 Section cross-reference(s): 60
 ST germanium selenium glass **fertilizer** manuf
 IT Slags
 (coal-combustion; germanium and selenium-enriched glass
 fertilizer and the method for producing the same)
 IT Ashes (residues)
 (fly; germanium and selenium-enriched glass **fertilizer**
 and the method for producing the same)
 IT Glass, biological studies
 (germanium and selenium-enriched glass **fertilizer** and
 the method for producing the same)
 IT **Fertilizers**
 (germanium and selenium-enriched glass **fertilizer** and
 the method for producing the same)
 IT 1303-86-2, Boron oxide, biological studies 1305-78-8,
 Calcium oxide, biological studies 1307-96-6,
 Cobalt oxide, biological studies 1308-38-9, Chromium oxide,
 biological studies 1309-37-1, Ferric oxide, biological studies
 1309-48-4, **Magnesium oxide**, biological
 studies 1313-27-5, **Molybdenum oxide**,
 biological studies 1313-99-1, Nickel oxide, biological studies
 1314-13-2, Zinc oxide, biological studies 1314-62-1, Vanadium
 oxide, biological studies 1317-38-0, Copper oxide, biological
 studies 1332-29-2, Tin oxide 1344-28-1, Aluminum oxide,
 biological studies 1344-43-0, Manganese oxide, biological studies
 7631-86-9, Silica, biological studies
 (germanium and selenium-enriched glass **fertilizer** and
 the method for producing the same)
 IT 7440-56-4, Germanium, biological studies 7782-49-2, Selenium,
 biological studies
 (germanium and selenium-enriched glass **fertilizer** and
 the method for producing the same)

L36 ANSWER 7 OF 18 HCA COPYRIGHT 2009 ACS on STN

135:76421 Glass **fertilizer** and the method for producing the same. Zhao, Shanmao; Zhang, Zhao; Xiao, Dazhuang (Peop. Rep. China). PCT Int. Appl. WO 2001049635 A1 **20010712**, 19 pp.

DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Chinese). CODEN: PIXXD2. APPLICATION: WO 2001-CN3 20010103. PRIORITY: CN 2000-100008 20000103.

AB The present invention provides a glass **fertilizer** and its prodn. method. The process comprises adding coals and vitrified additives into liq. residual slag boiler and burning at high temps. to obtain a random network body melting glass slurry, quenching the glass slurry with water, drying and grinding, therefore obtaining a powd. glass **fertilizer**. The process is inexpensive and does not cause pollution.

IT **1305-78-8, Calcium oxide**, biological studies **1309-48-4, Magnesium oxide**, biological studies **1313-27-5, Molybdenum oxide**, biological studies **1313-59-3, Sodium oxide**, biological studies (glass **fertilizer** and its prodn. method)

RN 1305-78-8 HCA

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

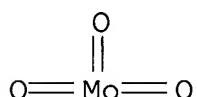
RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg=O

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



RN 1313-59-3 HCA

CN Sodium oxide (Na₂O) (CA INDEX NAME)

Na—O—Na

IC C05G003-00; C05G001-00; C05D009-02; C03C006-10
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST glass **fertilizer** manuf trace element
 IT Glass, biological studies
 Trace elements, biological studies
 (glass **fertilizer** and its prodn. method)
 IT Coal, biological studies
Fertilizers
 (glass **fertilizer** and its prodn. method)
 IT **1305-78-8, Calcium oxide**, biological
 studies 1307-96-6, Cobalt oxide, biological studies 1309-37-1,
 Ferric oxide, biological studies **1309-48-4**,
Magnesium oxide, biological studies
1313-27-5, Molybdenum oxide, biological
 studies **1313-59-3, Sodium oxide**,
 biological studies 1313-99-1, Nickel oxide, biological studies
 1314-13-2, Zinc oxide, biological studies 1314-56-3, Phosphorus
 oxide, biological studies 1314-62-1, Divanadium pentaoxide,
 biological studies 1317-38-0, Copper oxide, biological studies
 1332-29-2, Tin oxide 1344-28-1, Aluminum oxide, biological studies
 1344-43-0, Manganese oxide, biological studies 7440-42-8, Boron,
 biological studies 7631-86-9, Silicon dioxide, biological studies
 7704-34-9, Sulfur, biological studies 11118-57-3, Chromium oxide
 12136-45-7, Potassium oxide, biological studies 16984-48-8,
 Fluoride, biological studies
 (glass **fertilizer** and its prodn. method)

L36 ANSWER 8 OF 18 HCA COPYRIGHT 2009 ACS on STN
 132:307800 Glassy **fertilizers** as ecological materials
 preserving the chemical equilibrium of natural environment.
 Waclawska, I.; Stoch, L.; Ostrowska, J. (University of Mining and
 Metallurgy, Krakow, 30-059, Pol.). Prace Komisji Nauk Ceramicznych,
 Ceramika (Polska Akademia Nauk), 57(Porous and Special Glasses),
 221-231 (English) **1998**. CODEN: PKNCE6. ISSN: 0860-3340.
 Publisher: Polskie Towarzystwo Ceramiczne.

AB The subject is mineral **fertilizers** in a glassy
 phosphosilicate form, with controlled release rate of the useful
 nutrients, preserving the chem. equil. of natural environment. They
 may supply phosphorus, potassium, calcium and magnesium and a wide
 set of microelements (Mn, Cu, B, Mo, Zn, Fe) in a biol. active form,
 in the amts. needed by the crops, without releasing Cl-, SO42- ions
 or other anions, usually hardly tolerated by the plants. Glassy
fertilizers are sparingly sol. in water, which counteracts
 the occurrence of loses as it prevents the washing out of nutrients

from the soil. The dissoln. rate of particular macro- and microelements of the glassy **fertilizers** depends on their chem. compn., and it may be controlled over a wide range by appropriate selection of these components. The dissoln. of glassy **fertilizers** in soil solns. proceeds through formation of a diffusion layer of solid products, the chem. of which depends on the soil soln. pH and time of dissoln. This takes place near the interphase boundary glass-soil environment. Exptl. cultivations of plants confirmed that glassy **fertilizers** are able to supply the mineral components needed at various stages of the plant growth and development.

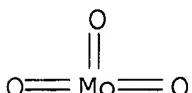
IT 1305-78-8, **Calcium oxide**, biological studies 1309-48-4, **Magnesium oxide**, biological studies 1313-27-5, **Molybdenum trioxide**, biological studies (sustained-release phosphosilicate glass **fertilizer** contg.)
 RN 1305-78-8 HCA
 CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1309-48-4 HCA
 CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg=O

RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST phosphosilicate glass **fertilizer** soil
 IT Soils (sustained-release mechanism of phosphosilicate glass **fertilizers** in soil)
 IT **Fertilizers**
 Phosphosilicate glasses (sustained-release mechanism of phosphosilicate glass **fertilizers** in soil)
 IT 1303-86-2, Boron oxide, biological studies 1305-78-8, Calcium oxide, biological studies 1309-37-1,

Iron(III) oxide, biological studies **1309-48-4**,

Magnesium oxide, biological studies

1313-27-5, Molybdenum trioxide,

biological studies 1314-13-2, Zinc oxide, biological studies

1314-56-3, Phosphorus pentoxide, biological studies 1317-38-0,

Copper(II) oxide, biological studies 1344-43-0, Manganese

monoxide, biological studies 7631-86-9, Silicon dioxide,

biological studies 12136-45-7, Potassium oxide, biological studies

(sustained-release phosphosilicate glass **fertilizer**

contg.)

L36 ANSWER 9 OF 18 HCA COPYRIGHT 2009 ACS on STN

129:15714 Original Reference No. 129:3379a,3382a **Fertilizer**

compositions including chelated metal ions. Dean, Frank W. (Stoller Enterprises, Inc., USA). PCT Int. Appl. WO 9821166 A1

19980522, 19 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ,

BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2.

APPLICATION: WO 1997-US21180 19971113. PRIORITY: US 1996-30168
19961113.

AB The invention is directed to **fertilizer** additives and compns., and to methods for their prepn. and administration to plants. The **fertilizer** additives include chelated metal ions of the transition and alk. earth metals. The chelated metal solns. are prepnd. by complexing metal cations using an org. acid and an org. amine. The **fertilizer** additives include a sufficient quantity of amine to maintain the pH above about 7.5 and preferably about 8-11. While the source of the metal ions may be any biol.-acceptable metal salt, the metal oxides are preferred. The preferred chelating agents are citric acid and a difunctional amine. The preferred amines are 2-hydroxyethylamine, dimethylaminopropylamine and mixts. thereof. Additive solns. contg. such chelated metals are stable at alk. pH and are used to prep. clear, liq. **fertilizer** compns. for delivery of trace metals to plants.

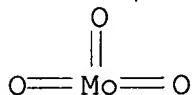
IT **1309-48-4DP, Magnesium oxide**, chelate with 2-hydroxyethylamine, dimethylaminopropylamine and citric acid
1313-27-5DP, Molybdenum oxide, chelate with 2-hydroxyethylamine, dimethylaminopropylamine and citric acid
 (**fertilizer** compns. of chelated metal ions)

RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg—O

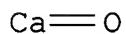
RN 1313-27-5 HCA
 CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



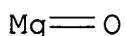
IC ICM C05C011-00
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST trace element **fertilizer** metal chelate
 IT Amines, biological studies
 (diamines, chelates with metals and citric acid;
 fertilizer compns. of chelated metal ions)
 IT **Fertilizers**
 (trace element; **fertilizer** compns. of chelated metal
 ions)
 IT 77-92-9DP, Citric acid, chelates with metals and difunctional amines
 109-55-7DP, chelates with metals and citric acid 141-43-5DP,
 2-Hydroxyethylamine, chelates with metals and citric acid
1309-48-4DP, Magnesium oxide, chelate
 with 2-hydroxyethylamine, dimethylaminopropylamine and citric acid
1313-27-5DP, Molybdic oxide, chelate with
 2-hydroxyethylamine, dimethylaminopropylamine and citric acid
 1314-13-2DP, Zinc oxide, chelate with 2-hydroxyethylamine and citric
 acid 1333-22-8DP, Tribasic copper sulfate, chelate with
 2-hydroxyethylamine and citric acid 7439-89-6DP, Iron, chelates
 with difunctional amines and citric acid, biological studies
 7439-95-4DP, Magnesium, chelates with difunctional amines and citric
 acid, biological studies 7439-96-5DP, Manganese, chelates with
 difunctional amines and citric acid, biological studies
 7439-98-7DP, Molybdenum, chelates with difunctional amines and
 citric acid, biological studies 7440-48-4DP, Cobalt, chelates with
 difunctional amines and citric acid, biological studies
 7440-50-8DP, Copper, chelates with difunctional amines and citric
 acid, biological studies 7440-66-6DP, Zinc, chelates with
 difunctional amines and citric acid, biological studies
 7440-70-2DP, Calcium, chelates with difunctional amines and citric
 acid, biological studies 7447-39-4DP, Copper(II) chloride, chelate
 with 2-hydroxyethylamine, dimethylaminopropylamine and citric acid
 7705-08-0DP, Iron(III) chloride, chelate with 2-hydroxyethylamine,
 dimethylaminopropylamine and citric acid 7720-78-7DP, Iron(II)
 sulfate, chelate with 2-hydroxyethylamine, dimethylaminopropylamine
 and citric acid 7758-98-7DP, Copper sulfate, chelate with

2-hydroxyethylamine, dimethylaminopropylamine and citric acid 10034-99-8DP, Magnesium sulfate heptahydrate, chelate with 2-hydroxyethylamine and citric acid 19086-18-1DP, Copper sulfate heptahydrate, chelate with 2-hydroxyethylamine and citric acid 71799-92-3DP, Manganese citrate, chelate with 2-hydroxyethylamine and dimethylaminopropylamine
(fertilizer compns. of chelated metal ions)

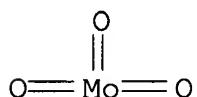
- L36 ANSWER 10 OF 18 HCA COPYRIGHT 2009 ACS on STN
 123:206803 Original Reference No. 123:36683a,36686a Glass composition for cultivation of plants. Betsupu, Yoshihisa; Oota, Masaaki; Yamatsuta, Kiichi (Asahi Fibreglass Co, Japan; Shimadzu Corp). Jpn. Kokai Tokkyo Koho JP 07170852 A **19950711** Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-345456 19931221.
- AB Silica-based glass compn. contains 1-30 wt.% N₂ is used as **fertilizer** for the cultivation of plants. The glass compn. is slowly dissolved by water or acid to supply the necessary nutrition to the plants.
- IT **1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses 1313-27-5, Molybdenum trioxide, uses 1313-59-3, Sodium oxide, uses**
 (in glass compn. for cultivation of plants)
- RN 1305-78-8 HCA
- CN Calcium oxide (CaO) (CA INDEX NAME)



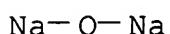
- RN 1309-48-4 HCA
- CN Magnesium oxide (MgO) (CA INDEX NAME)



- RN 1313-27-5 HCA
- CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



- RN 1313-59-3 HCA
- CN Sodium oxide (Na₂O) (CA INDEX NAME)



IC ICM A01G001-00
 ICS C03C003-04; C03C004-00; C05C011-00
 CC 57-1 (Ceramics)
 Section cross-reference(s): 19
 IT 1301-96-8, Silver monoxide 1303-86-2, Boron trioxide, uses
1305-78-8, Calcia, uses 1307-96-6, Cobalt
 monoxide, uses 1308-38-9, Dichromium trioxide, uses 1309-37-1,
 Ferric oxide, uses **1309-48-4, Magnesia**, uses
 1313-13-9, Manganese dioxide, uses **1313-27-5**,
Molybdenum trioxide, uses **1313-59-3**,
Sodium oxide, uses 1314-13-2, Zinc oxide, uses
 1314-56-3, Phosphorus pentoxide, uses 1317-38-0, Cupric oxide,
 uses 1317-39-1, Cuprous oxide, uses 1344-28-1, Alumina, uses
 1344-43-0, Manganese monoxide, uses 1345-25-1, Ferrous oxide, uses
 7446-08-4, Selenium oxide (SeO₂) 7782-50-5, Chlorine, uses
 12136-45-7, Potassium oxide, uses 20667-12-3, Silver oxide
 (in glass compn. for cultivation of plants)

L36 ANSWER 11 OF 18 HCA COPYRIGHT 2009 ACS on STN
 116:40455 Original Reference No. 116:6925a,6928a Liquid trace element
fertilizer manufacture, using citric acid manufacture
 wastewaters.. Dankiewicz, Maria; Skowronski, Boleslaw; Sas, Jozef;
 Czuba, Roman; Malczewski, Zbigniew; Wisz, Aleksandra (Instytut
 Nawozow Sztucznych, Pulawy, Pol.). Pol. PL 153485 B2
19910430, 11 pp. Abstracted and indexed from the unexamined
 application (Polish). CODEN: POXXA7. APPLICATION: PL 1989-280900
 19890801.

AB Liq. Mg-N-K **fertilizers** contains ≥1 trace element
 in the form of a complex with compds. contained in the effluent from
 the manuf. of citric acid from molasses. The ratio of effluent to
 microelements is 0.2-500:1, preferably 1-15:1.

IC ICM C05D009-02
 ICS C05G001-00
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 ST liq trace element **fertilizer**; waste citrate manuf
fertilizer

IT Trace elements, biological studies
 (**fertilizers** contg., citric acid manuf. wastewaters in)

IT Wastewater
 (from citric acid manuf., in trace element **fertilizer**
 prodn.)

IT **Fertilizers**
 (trace element, effluent from citric acid manuf. in)

IT 77-92-9P, Citric acid, preparation
 (effluent from manuf. of, in trace element **fertilizer**
 manuf.)

IT 7439-89-6, Iron, biological studies 7439-96-5, Manganese,

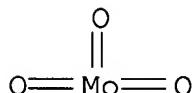
biological studies 7439-98-7, Molybdenum, biological studies
 7440-42-8, Boron, biological studies 7440-48-4, Cobalt, biological
 studies 7440-50-8, Copper, biological studies 7440-66-6, Zinc,
 biological studies 7720-78-7, Ferrous sulfate 7733-02-0, Zinc
 sulfate 7758-98-7, Cupric sulfate, biological studies 7785-87-7,
 Manganese sulfate 10026-22-9 10043-35-3, Boric acid (H₃BO₃),
 biological studies 11098-84-3, Ammonium **molybdenum**
oxide 12054-85-2 12680-49-8, Molybdenum **sodium**
oxide 37211-00-0, Molybdenum potassium oxide
 (liq. **fertilizer** contg., effluent from citric acid
 manuf. in prepn. of)

L36 ANSWER 12 OF 18 HCA COPYRIGHT 2009 ACS on STN
 115:278915 Original Reference No. 115:47381a, 47384a Manufacture of a
 new glass **fertilizer** containing trace elements and rare
 earth elements. Tao, Ying; Cheng, Aihua (Dalian Institute of Light
 Industry, Peop. Rep. China). Faming Zhuanli Shengqing Gongkai
 Shuomingshu CN 1051344 A **19910515**, 6 pp. (Chinese).
 CODEN: CNXXEV. APPLICATION: CN 1989-108043 19891028.

AB A new glass **fertilizer** is claimed, which comprises
 phosphosilicate glass (contg. P₂O₅, SiO₂, **CaO**, **MgO**
 , Al₂O₃, Fe₂O₃, **Na₂O**, and K₂O) molten with rare earth
 element compds. (e.g. La₂O₃, Nd₂O₃, CeO₂, Pr₆O₁₁, Y₂O₃, Gd₂O₃,
 Sm₂O₃) and trace element compds. (e.g. ZnO, MnO₂, B₂O₃, CuO,
 MoO₃). The glass **fertilizer** is useful for
 ripening mushrooms, cucumbers, egg plants, apples, grapes and other
 crops, increasing the crop yield, and improving the sugar content in
 e.g. apples or grapes. The **fertilizer** is effective and
 lasts longer.

IT **24401-73-8**, Molybdite
 (glass **fertilizer** contg. phosphosilicate glass and rare
 earth element compds. and)

RN 24401-73-8 HCA
 CN Molybdite (MoO₃) (9CI) (CA INDEX NAME)



IT **1305-78-8**, Calcium **oxide**, biological
 studies **1309-48-4**, Magnesium **oxide**,
 biological studies **1313-59-3**, Sodium
oxide, biological studies
 (in phosphosilicate glass, **fertilizer** contg. rare earth
 element compds. and trace element compds. and)

RN 1305-78-8 HCA
 CN Calcium oxide (CaO) (CA INDEX NAME)

Ca—O

RN 1309-48-4 HCA
CN Magnesium oxide (MgO) (CA INDEX NAME)

Mg—O

RN 1313-59-3 HCA
CN Sodium oxide (Na₂O) (CA INDEX NAME)

Na—O—Na

IC ICM C05B017-00
CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
ST glass **fertilizer** trace element manuf; rare earth glass
fertilizer manuf; phosphosilicate glass trace element
fertilizer
IT Apple
Cucumber
Eggplant
Grape
Mushroom
 (phosphosilicate glass **fertilizer** contg. trace elements
 and rare earth elements for)
IT Rare earth metals, compounds
 (compds., molten with phosphosilicate glass, **fertilizer**
 contg.)
IT Glass, oxide
 (phosphosilicate, molten with rare earth element compds. and
 trace element compd., **fertilizer** contg.)
IT **Fertilizers**
 (trace element, phosphosilicate glass- and rare earth element
 compd.-contg.)
IT 1303-86-2, Boron oxide, biological studies 1313-13-9, Manganese
oxide, biological studies 1314-13-2, Zinc oxide, biological
studies 1317-38-0, Cupric oxide, biological studies
24401-73-8, Molybdite
 (glass **fertilizer** contg. phosphosilicate glass and rare
 earth element compds. and)
IT 1306-38-3, Cerium dioxide, biological studies 1312-81-8, Lanthanum
oxide 1313-97-9, Neodymium oxide (Nd₂O₃) 1314-36-9, Yttrium
oxide, biological studies 12037-29-5, Praseodymium oxide (Pr₆O₁₁)
12060-58-1, Samarium trioxide 12064-62-9, Gadolinium oxide
 (glass **fertilizer** contg. phosphosilicate glass and

trace element compds. and)

- IT 1305-78-8, **Calcium oxide**, biological studies 1309-37-1, Iron oxide (Fe2O3), biological studies
 1309-48-4, **Magnesium oxide**, biological studies 1313-59-3, **Sodium oxide**, biological studies 1314-56-3, Phosphorus petoxide, biological studies 1344-28-1, Aluminum oxide, biological studies 7631-86-9, Silicon dioxide, biological studies 12136-45-7, Potassium oxide, biological studies
 (in phosphosilicate glass, **fertilizer** contg. rare earth element compds. and trace element compds. and)

L36 ANSWER 13 OF 18 HCA COPYRIGHT 2009 ACS on STN
 111:6482 Original Reference No. 111:1255a,1258a Multinutrient tobacco **fertilizer** manufacture and use. Teren, Jan; Hutar, Eduard; Tehlar, Jozef; Nosko, Vladimir; Vazny, Emil; Chromicky, Karol (Czech.). Czech. CS 239384 B1 19870615, 7 pp. (Slovak).
 CODEN: CZXXA9. APPLICATION: CS 1984-3336 19840507.

AB A liq. or paste multicomponent **fertilizer** contg. basic and secondary growth nutrients and micronutrients, is designed as a **fertilizer** for tobacco. A multicomponent **fertilizer** contained N-Mg-S (N 13.8, **MgO** 5.7, S 4.5%) soln. 123.1, ammonium bis(ethylene glycol) borate (B-conc.) 16.2, Mn EDTA (Mn 2.4%) 36.45, Zn EDTA (Zn 4.0%) 10.63, ammonium molybdate citrate 0.43, Cu EDTA (Cu 4.7%) 9.08, Fe EDTA (Fe 2.35%) 53.2, K 3-indolylacetate 0.9, and concd. H2SO4 0.67 kg. At 20° its pH = 6.8 and d. = 1258 kg/m3. When applied to tobacco plants in a two-year study, it increased yields in every case.

IT 1309-48-4, **Magnesium oxide** (**MgO**), biological studies
 (in multinutrient **fertilizer** for tobacco)

RN 1309-48-4 HCA
 CN Magnesium oxide (**MgO**) (CA INDEX NAME)

Mg=O

- IC ICM C05D009-02
 CC 19-7 (Fertilizers, Soils, and Plant Nutrition)
 Section cross-reference(s): 11
 ST metal element **fertilizer** tobacco
 IT Tobacco
 (multinutrient **fertilizer** for)
 IT **Fertilizer** experiment
 (with tobacco, multinutrient **fertilizer** for)
 IT **Fertilizers**
 (multinutrient, for tobacco)
 IT 7439-96-5D, Manganese, EDTA complexes 11098-84-3, Ammonium

molybdenum oxide

(fertilizer contg., for tobacco)

IT 60-00-4D, iron and manganese complexes **1309-48-4**,
Magnesium oxide (MgO), biological studies 2338-19-4 7439-89-6, Iron, biological studies
 7439-89-6D, Iron, EDTA complexes 7439-89-6D, Iron, lignosulfonate complexes 7439-96-5, Manganese, biological studies 7439-96-5D, Manganese, lignosulfonate complexes 7439-98-7, Molybdenum, biological studies 7440-23-5, Sodium, biological studies 7440-42-8, Boron, biological studies 7440-50-8, Copper, biological studies 7440-50-8D, Copper, lignosulfonate complexes 7440-66-6, Zinc, biological studies 7440-66-6D, Zinc, lignosulfonate complexes 7487-88-9, Magnesium sulfate, biological studies 7632-50-0 7664-93-9, Sulfuric acid, biological studies 7704-34-9, Sulfur, biological studies 8062-15-5D, Lignosulfonic acid, metal complexes 12519-36-7, Zinc EDTA 51395-10-9, Copper EDTA 102802-02-8, Ammonium bis-ethyleneglycolborate (in multinutrient **fertilizer** for tobacco)

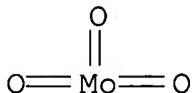
L36 ANSWER 14 OF 18 HCA COPYRIGHT 2009 ACS on STN

109:229586 Original Reference No. 109:37969a,37972a Glass-like substances as **fertilizers** and pesticides for hydroponics.. Matoba, Shigekimi (Asahi Glass Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 63084428 A **19880415** Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1986-229949 19860930.

AB Glass-like substances for plant culture contain P2O5 4-47 and R2O (R = Na or K) 4-47 mol %, the dissocn. rate in H2O being 2-300 mg/cm². Materials contg. P2O5 38, **Na2O** 38, **MgO** 4, **CaO** 12, CuO 7.9, and MnO 0.1 mol % were mixed, heated at 1000-1100°, and vitrified. The glass-like substances were degraded to granules (av. diam. 5 mm); the dissocn. rate in H2O was 2.5 mg/cm². The 1000 g glass-like substance was added to 1000 L H2O, and a K **fertilizer** was blended into the mixt. Tomatoes were grown in this medium and the H2O was changed every 10 days. The glass-like substance was washed with H2O, and reused with other **fertilizers**. No microbial growth was obsd. in the culture medium.

IT **1313-27-5, Molybdenum trioxide**, biological studies (glasslike **fertilizers** and pesticides contg.)

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)

IC ICM A01G031-00
 ICS C05B017-00
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 Section cross-reference(s): 5
 ST glasslike **fertilizer** pesticide hydroponics
 IT Glass, oxide
 (fertilizers and pesticides)
 IT Oxides, biological studies
 (glasslike fertilizers and pesticides contg.)
 IT Hydroponics
 (glasslike fertilizers for)
 IT Pesticides
 Fertilizers
 (glasslike substances as)
 IT 1303-86-2, Boron trioxide, biological studies 1307-96-6, Cobalt monooxide, biological studies **1313-27-5**,
Molybdenum trioxide, biological studies
 1317-38-0, Copper monooxide, biological studies 1344-43-0,
 Manganese monooxide, biological studies 7439-96-5, biological studies 7439-98-7, biological studies 7440-42-8, biological studies 7440-48-4, biological studies 7440-50-8, biological studies
 (glasslike fertilizers and pesticides contg.)

L36 ANSWER 15 OF 18 HCA COPYRIGHT 2009 ACS on STN
 108:93682 Original Reference No. 108:15403a,15406a Glass-based
fertilizers. (Isover Saint-Gobain, Fr.). Jpn. Kokai Tokkyo Koho JP 62148337 A **19870702** Showa, 12 pp. (Japanese).
 CODEN: JKXXAF. APPLICATION: JP 1986-299068 19861217. PRIORITY: FR 1985-18672 19851217.

AB The glass products for agricultural uses contain nutrients which are absorbed by roots, such as mineral elements and trace elements. Glass fibers were produced from a glass contg. SiO₂ 40.10, P₂O₅ 6.50, K₂O 16.80, CaO 15.30, MgO 4.90, SO₃ 0.10, Fe₂O₃ 0.12, ZnO 0.23, CuO 0.09, MoO₃ 0.03, Na₂O 0.07, and Al₂O₃ 4.90%. The nutrients were leached out with an NH₄OAc soln.. The leachate contained P₂O₅ 3.50, K₂O 1.29, CaO 4.05, MgO 0.45 g/kg, Fe₂O₃ 22.9, and MnO 5.0 mg/kg.

IC ICM C03C003-097
 ICS C03C004-00; C03C013-00; C05D009-00; C05G001-00

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)
 Section cross-reference(s): 57

ST glass fiber slow release **fertilizer**; trace element glass fiber **fertilizer**; mineral element glass fiber **fertilizer**

IT Glass fibers, biological studies
 (fertilizers-contg., slow-release)

IT Trace elements, biological studies

(glass fiber contg., as slow-release **fertilizer**)

IT **Fertilizers**

(phosphorus-potassium-trace element, sustained-release, glass fibers)

IT 7440-09-7 7723-14-0

(**fertilizers**, phosphorus-potassium-trace element, sustained-release, glass fibers)

IT 7439-89-6, biological studies 7439-95-4, biological studies

7439-96-5, biological studies 7439-98-7, biological studies

7440-50-8, biological studies 7440-66-6, biological studies

7704-34-9, biological studies

(glass fiber contg., as slow-release **fertilizer**)

L36 ANSWER 16 OF 18 HCA COPYRIGHT 2009 ACS on STN

99:211705 Original Reference No. 99:32569a,32572a Depot

fertilizers and their use. Brunn, Horst; Niggemann, Johannes; Koehler, Peter; Hund, Franz (Bayer A.-G. , Fed. Rep. Ger.). Ger. Offen. DE 3212537 A1 **19831013**, 75 pp.

(German). CODEN: GWXXBX. APPLICATION: DE 1982-3212537 19820403.

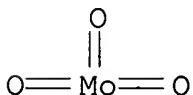
AB The depot **fertilizers** consist of an inorg. matrix and a 2nd inorg. and(or) org. component of general formula: $x\text{Me(II)}_x\text{(1-x)/2 Me(III)}_z\text{O}_y\text{A}_z\text{I}_x\text{aq}$, where Me(II) and Me(III) are ≥ 1 di- and trivalent metals, A is ≥ 1 inorg. acid or anhydride, I is ≥ 1 org. compd., aq is 0-9 H₂O or 0, 5-6 H₂O, x and y are nos., with x = 0-1, z is 0.2-0.9, and ≥ 1 of the components is a plant nutrient. Thus, to 192.3 g Mg(NO₃)₂·6H₂O dissolved in 1500 mL H₂O, a soln. contg. 400 g Al(OH)₃ and 10.4 g NaOH/L is added and the mixt. is stirred for 15 min. Thereafter the pH of the mixt. is brought to 8.5 by addn. of either HNO₃ or NaOH. The suspension is further stirred for 5 h, dried, and ground. The soln. system contains MgO 23.7, Al₂O₃ 20.3, N₂O₅ 19.5, and H₂O 36.2 wt.%, satisfying the above equation.

IT **1313-27-5**, biological studies

(in depot **fertilizers** contg. di- and trivalent models manuf.)

RN 1313-27-5 HCA

CN Molybdenum oxide (MoO₃) (CA INDEX NAME)



IC C05G001-00

CC 19-6 (Fertilizers, Soils, and Plant Nutrition)

ST **fertilizer** depot manuf

IT **Fertilizers**

(depot, contg. di- and trivalent metals, manuf. of)

IT Humic acids
 (in depot **fertilizers** contg. di- and trivalent models
 manuf.)

IT 77-92-9, biological studies 139-33-3 1302-42-7 1305-62-0,
 biological studies 1309-42-8 1310-73-2, biological studies
1313-27-5, biological studies 1330-43-4 7447-39-4,
 biological studies 7646-85-7, biological studies 7697-37-2, uses
 and miscellaneous 7720-78-7 7758-94-3 7773-01-5 8061-51-6
 10043-01-3 10043-35-3, biological studies 10377-60-3
 10421-48-4 12027-67-7 13473-90-0 14402-89-2 21645-51-2,
 biological studies
 (in depot **fertilizers** contg. di- and trivalent models
 manuf.)

L36 ANSWER 17 OF 18 HCA COPYRIGHT 2009 ACS on STN
 94:138555 Original Reference No. 94:22695a,22698a High-manganese foliar
fertilizers using manganese ores. Pentek, Istvan; Puch,
 Jozsef (Vasipari Kutato Intezet, Hung.). Hung. Teljes HU 18677
19800828, 21 pp. (Hungarian). CODEN: HUXXBU. APPLICATION:
 HU 1977-VA1515 19771223.

AB Foliar **fertilizer** concs. contg. N 5-25, K 0.5-10.0, Na
 0.02-4.0, **MgO** 0.1-9.0, B 0.05-0.5, Mn 0.1-2.0, Cu
 0.05-0.6, Zn 0.01-0.55, Fe 0.05-6.0, Co 0.001-0.01, Mo 0.05-0.1,
 SO₄2- 1-25, and NH₄⁺ 1-7% were prep'd. by H₂SO₄ and(or) HNO₃
 treatment of Mn ores or mixts. of Mn, Zn, Cu, and(or) Mo ores or
 wastes, neutralization of the filtered mixt. contg. 50-150 g Mn/L
 with NH₄OH, KOH, NaOH, Ca(OH)₂, and(or) Mg(OH)₂ to a Mn concn. of
 5-20 g/L, removal of the Mn ppt., and treatment of the filtrate with
 B, N, Cu, Zn, Mo, and chelate-forming compds. Thus, a mixt. of 100
 kg Mn ore contg. Mn 16.24, Fe 10.50, SiO₂ 22.50, Al₂O₃ 4.32,
CaO 5.02, **MgO** 4.62, S 0.06, P 0.36, Ti 0.14, K
 1.48, and Co 0.0025% and wastes contg. ZnO 0.235, CuO 0.575, and
MoO₃ 0.16 kg (particle size ≤0.1 mm) was treated with
 46.9 L concd. H₂SO₄; the product was heated 1 h at 700°,
 treated with 200 L H₂O, and filtered. The filtrate was treated with
 NH₄OH and CO₂ and filtered, and the filtrate treated with Na₂B₄O₇
 3.44, urea 2.24, and chelating agents to give a title conc. contg. N
 14, Fe 0.62, K 0.08, Na 0.05, **MgO** 1.7, B 0.205, Cu 0.248,
 Mo 0.05, Zn 0.082, Mn 1, Co 0.001, PO₄3- 0.043, NH₄⁺ 4.66, and SO₄2-
 18.9%.

IC C05D009-021; A01N017-08

CC 19-5 -(Fertilizers, Soils, and Plant Nutrition)

ST manganese rich **fertilizer** ore waste; multinutrient
fertilizer manganese ore

IT Manganese ores

(**fertilizer** manuf. from, multinutrient foliar)

IT Wastes

(trace element-contg., in **fertilizer** manuf.)

IT **Fertilizers**

(multinutrient, manganese-rich foliar, from manganese ores)

IT 7439-96-5P, preparation

(fertilizers rich in, manuf. of foliar)

L36 ANSWER 18 OF 18 HCA COPYRIGHT 2009 ACS on STN

51:44803 Original Reference No. 51:8355e-g Seed planting composition.

Clawson, Clinton D. (Ferro Corp.). US 2785969 **19570319**

(Unavailable). APPLICATION: US .

AB A method is described for making a preformed block composed of plant foods, carrier, and binder. The top surface of the block is provided with depressions or grooves for the placement of seeds. A mixt. of paper 8, peat moss 12.5, fritted plant foods (I) 10, exfoliated mica 91.4, and urea-formaldehyde resin 2 is slurried with H₂O, molded into blocks, and dried. Seeds are placed on the depressions or grooves, and the whole is placed in the soil. I is composed of Fe₂O₃ 3.5, MnO₂ 0.1, CuO 0.04, ZnO 0.05, B₂O₃ 0.15, MoO₃ 0.006, SiO₂ 37.10, CaO 18.00, MgO 1.6, K₂O 21.10, and CoO 0.003%.

CC 15 (Soils and Fertilizers)

IT **Fertilizers**

(in seed planting compn.)